AIDS
TO
PSYCHOLOGY

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PREFACE TO THE THIRD EDITION

An attempt has been made in the following pages to present in a brief and concise form the main facts of psychology for the use of students. The book is intended to offer a means of rapid revision following a study of the larger textbooks on the subject, and the aim throughout has been to emphasise those points useful to students studying for a Diploma in Psychological Medicine.

In this, the third edition, the subject matter has been carefully revised, and while it has been recognised that a sound foundation of academic psychology is desirable, an outline has also been included of the more important facts of recent psychological theory. To this end new chapters have been added. In addition the psychopathological implications of normal psychology have received attention.

The author is indebted to a large number of works on psychology and ancillary subjects that have been consulted and made use of in the preparation of this book and acknowledgments are here made.

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CONTENTS

PAGE
I. INTRODUCTION - - - - - 1
II. BODY AND MIND - - - 5
III. DATA AND METHODS OF PSYCHOLOGY - 9
IV. COGNITION, CONATION, AFFECTION - 18
V. ATTENTION AND APPERCEPTION - 27
VI. MENTAL DISPOSITIONS, RETENTIVENESS, ASSOCIATION, RECALL - - 38
VII. INSTINCT - - - - 50
VIII. HABIT - - - - - 80
IX. PURPOSIVE ACTION AND REFLEX ACTION 83
X. SENSATION, LOCAL SIGN, WEBER'S LAW 88
XI. PERCEPTION, IMAGERY, MEANING - 104
XII. LANGUAGE - - - - 112
XIII. IMITATION - - - - 116
XIV. MEMORY - - - - 119
XV. EMOTION - - - - 124
XVI. MOOD, DISPOSITION, TEMPER, TEMPERAMENT, PERSONALITY - - 132
XVII. BELIEF - - - - 140
XVIII. SENTIMENT - - - - 144
XIX. SLEEP - - - - - 148
XX. DREAMS - - - - 151
XXI. THE SELF - - - - 154
XXII. COMPLEX, DISSOCIATION, TYPES OF THINKING - - - - 159
XXIII. ILLUSION, HALLUCINATION - - 163
XXIV. INTELLIGENCE AND INTELLIGENCE TESTS 166
XXV. FREUD AND PSYCHO-ANALYSIS - - 170
XXVI. JUNG'S ANALYTICAL PSYCHOLOGY - 174
XXVII. THE INDIVIDUAL PSYCHOLOGY OF ADLER 177
XXVIII. BEHAVIOURISM AND GESTALT - - 179
XXIX. MENTAL MECHANISMS - - - 181
XXX. SUGGESTION - - - - 186
INDEX - - - - - 191

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CHAPTER I

INTRODUCTION

THE aim of psychology is to give a systematic account of the laws and conditions of the life history of individual minds. It deals with psychical states and processes, the modes of their occurrence and their objects.

There is a variety of definitions of psychology, but it is not a subject that can be accurately described in a phrase.

Psychology has been defined as the science of the conscious and near conscious activities of living individuals. The behaviourist school say that consciousness should be omitted from the study of psychology, and that it is simply the science of behaviour. This view has given rise to the dictum that, first psychology lost its soul, and then it lost its mind, and then its consciousness, but it still has behaviour of a kind.

An excellent definition is that psychology is the positive and empirical science of the human mind, or the study of human nature in its mental aspect.

Psychology is concerned with modes of consciousness as connected within the unity of consciousness.

Modes of consciousness or, better, modes of experience are the relations of the mind to the objects it apprehends. All knowing of objects, all wishing and behaving, all immediate experiences including sensations, all these that are owned by a conscious self are modes of consciousness.

In psychology, consciousness has no transition states: either the self is conscious or unconscious; there is no gradation of consciousness.

Modes of consciousness

1. Possess unity.
2. Are parts of a complex whole.
3. Are not found in isolation.
4. Are distinct from all else.

The unity of consciousness is implied in

1. Trial and failure.
2. Desire and satisfaction.
3. Expectation and disappointment.
4. Purpose and fufilment.
5. All recognition.

All must fall within the unity of the same consciousness. Stout points out that while a material thing is composed of material things, a conscious self is not composed of conscious selves. An individual consciousness cannot be broken into thoughts, feelings, and volition, each persisting like the fragments of a broken cup.

Immediate Experience.

A mind apprehends objects and has immediate experience—modes of feeling. A fact of immediate experience consists of the feeling being felt, and not necessarily in my knowing about it. Immediate experience cannot be shared by different minds; the immediate experience of one mind is particular to that mind. Immediate experiences may be primarily objective, that is objects attended to—sensations or mental images.

Note the distinction between the physical thing and the sensations we have in perceiving it.

1. The sensations are not shared; the physical thing is.
2. Sensations may be continued as a mental picture apart from the physical thing.
3. Sensations can be experienced in the absence of the thing, as in dreams and hallucinations.

Subjective and Objective.

In psychology these two terms are used with a specialised meaning. Subjective is the relation which the mind has to its objects in minding them. The state, functions, or acts of willing wishing, attending, behaving, etc. Objective is the mind's object, and is whatever is intended, meant, or thought of by the mind. I wish to learn psychology.' To learn psychology is the mind's object and is objective. Desiring it or thinking of it is my subjective relation to it.

A psychological description of a mind would include perceptions and conceptions, hopes, fears, and desires, and other immediate experiences, and would also specify the objects which in the above ways it is occupied with. There is a difference in the object which exists for the consciousness of one individual and that which exists for another, yet all the other conditions may be similar for both, but their past mental history has been different.

Bearing in mind this application of the terms subjective and objective, sensations are the mind's objects, they are parts of the make-up of objects apprehended, desired, or attended to—parts of the total object before the mind.

Presentations.

Immediate experiences that are primarily objective are called presentations—*e.g.*, sensations or mental images. Berkeley says that presentations exist only in the mind. There are two classes of objects, presentations and non-presentations. Presentations direct the flow of thought to objects which are not presentations, and therefore directly, as immediate experiences, or indirectly, through mental dispositions, condition the apprehension of all other objects. Amorphous presentations are halos surrounding the presentation. They are vague states which surround mental images, and James says that the value and significance of the image lies in its halo.

CHAPTER II

BODY AND MIND

THE relationship between mental processes and cerebral processes is a subject that has been much debated, and there are several theories that seek to connect cortical with mental activity.

The existence of a mind as a primary feature is common to most of the theories. McDougall says that the mind is a distinct entity, and must not be confused with the brain. The fundamental function of mind is to guide bodily movements. The use of the word 'brain' limits our freedom of thought, leads to absurd consequences and blinds us to the facts of observation. The mind *expresses* itself

1. In modes of individual experience.
2. In modes of bodily activity.

The *description* of the mind has to be evolved by inference from

1. The observed facts of experience.
2. The observed facts of behaviour.

The mind has been evolved in the course of our efforts

1. To comprehend } our physical surroundings.
2. To control }

It is composed of enduring things which undergo changes and react upon one another and upon us. The marks of behaviour (*vide infra*) are manifestations of the mind, and express it.

A mind is a conscious individual, but the use of the word 'consciousness' in this connection is to be deprecated. The word 'consciousness' is derived from *conscire* = to know things together, and the act of knowing or thinking of things should be the meaning of the term 'consciousness.' 'Experience' is a better term. The general form of experience is to think. *Cogito, ergo sum.* Experience is a process or train of activity. All experiencing is the experiencing of something and of someone.

The mind therefore

1. Experiences sensations.
2. Appreciates their meaning.
3. Determines bodily conduct in accordance with its own
    - (*a*) Interests,
    - (*b*) Purposes,
    - (*c*) Striving.

A stimulus does not of itself account for the resulting bodily behaviour. There is a very marked disproportion between stimulus and response. The impression is translated into 'expression' by a psychical mediating agent. A mind experiences the sensation, and sensation aided by preformed mental dispositions conveys to the mind a meaning. It is the meaning which determines and controls the ensuing behaviour of the body.

Hypotheses of the Relation of Body and Mind.

A. PSYCHO-PHYSICAL PARALLELISM.
B. INTERACTION.

A. PSYCHO-PHYSICAL PARALLELISM (Stout).

According to this theory, the conscious state never intervenes as an independent factor, and all factors which are not themselves material are excluded. When a certain psychical process occurs, a certain cerebral process occurs simultaneously with it.

Alterations in the nature of the psychical process are accompanied by corresponding alterations in the nature of the cerebral process. The psychical state comes into being coincidently with the cortical disturbances, but the psychical processes are not products of the correlated nervous processes.

For Psycho-physical Parallelism.

1. It is the orthodox view.
2. It maintains continuity in the physical explanation of psychical phenomena, there being no psychical factor admitted as an independent factor.
3. Metaphysics is against interaction.

Against Psycho-physical Parallelism.

1. It is not the natural and easy explanation.
2. It does not explain the occurrence of consciousness.

B. INTERACTION.

The theory of interaction states that the mind shapes and uses the brain as an instrument in the carrying out of its own interests. Here conscious life is an independent factor which controls and modifies nervous impulses.

It is impossible to state which of these two theories is correct. Our knowledge of what takes place in the brain is at present too rudimentary, but in any theory the principle of conscious striving after ends must be recognised. This is recognised by the theory of interaction

The theory of interaction implicates the brain as being the organ of the mind, and this view receives support from the results of physical treatments such as insulin therapy, electroplexy and the operation of prefrontal leucotomy in those mental disorders which

The theory of interaction implicates the brain as being the organ of the mind, and this view receives support from the results of physical treatments such as insulin therapy, electroplexy and the operation of prefrontal leucotomy in those mental disorders which are commonly considered to be produced by purely psychological factors.

It has previously been stated that modes of experience are the relations of the mind to the objects that it apprehends. A prime factor in the production of mental experience is the neurological factor of the sensory nerves that transmit the afferent impulses via the nervous pathways to the brain. These physical factors are therefore imperative to the production of modes of consciousness, and the theory of interaction receives further support.

Again, electro-encephalography (*q.v.*) shows that mental and emotional alterations which may be psychologically conditioned are reflected in the electro-encephalogram, thus emphasising the interdependence of psychological and physiological processes.

CHAPTER III

DATA AND METHODS OF PSYCHOLOGY

THE basis of psychology is common sense. Here the controlling interest is social, and not primarily introspective.

Common sense tells us

1. That mental processes and states show a systematic order which is fundamentally teleological—directed towards ends. The order of the material world is fundamentally mechanical.
2. That mental states and processes are connected with bodily behaviour.

Varieties of Psychology.

The main branches of psychology are

1. Differential psychology, where differences between people depending on heredity and environment are studied.
2. Applied psychology, where behaviour is predicted and controlled by tests.
3. General psychology, in which the main psychological laws are enumerated and described.
4. Genetic psychology. The study of mental development and heredity.
5. Sociology. The studv of the psychology of groups.

Methods of Psychological Investigation.

1. *Introspection.* — Subjective observation. The notice which the mind takes of its own operations (Locke).

2. *Objective Observation.*—Observation of others as apart from observation of oneself.
3. *Experimental.*—Psychological experiments which take place under controlled conditions. Experimental psychology may be divided into two branches—
    - (*a*) Scientific experiments—*e.g.*, blood and respiration rates in emotion.
    - (*b*) Quantitative methods where the duration of mental operations are measured.
4. *Pathological.*—The study of mental abnormality, maladaptations, and insanity. Mental disturbances are primarily an affair of the emotions and the conations, and this method is of importance in the study of the emotional life.
5. *Correlation.* — Double comparison. The comparison of intellect and brain weight.
6. *Comparative.*—Comparing the actions of people, classes and species, noting differences and likenesses. When a small number of people are taken for psychological investigation, it is spoken of as an experiment. A large number is a test.
7. *Genetic.*—Studying mental development.
8. *Child Life.*—The behaviour of children and the development of the child mind.
9. *Animal Life.*—The study of the behaviour of animals, especially instinctive behaviour.
10. *Uncivilised Races.*—The study of the customs, religions, and behaviour of uncivilised men.
11. *Physiology* of the central nervous system and sense organs.

Introspection.

In introspection there is a separate discernment of the self. It is, therefore, a special development of explicit self-consciousness. Self-consciousness is usually implicit, and the implicit consciousness of self preconditions the explicit. True introspection is not speculation, but an observation from fact.

There are three stages in introspection (Stout):

1 A transition from the objective to the subjective point of view.
2. Reflective stage. Curiosity of the subject concerning the working of his own mind. This stage is not scientific.
3. Introspection as a scientific method to answer questions of theoretical importance.

The following are necessary for true introspection:

1. Silence.
2. Comfort.
3. Impartiality.
4. Freshness.
5. Attentiveness.
6. Training.
7. Practice.

Introspection must be

1. Deliberate.
2. Methodical.
3. Systematic.
4. Controlled and directed by interest in theory.

Introspection can be improved by systematic training and practice, and it is helped by the work of our predecessors. They tell the investigator what to look for and how and where to look for it. The introspection of one generation starts the introspection of the next.

While the introspective method has been of the utmost value in building up a true conception of psychology, there are several objections to this method of study.

1. In introspection, the attention of the mind is divided between two objects:
    (a) The mental operation introspected.
    (b) The object to which the mental operation is directed.

    Therefore, where the introspective effort is difficult and of long duration, it tends to defeat its object. It should be noted that when introspection is complex it is really retrospection.
2. The act of introspection tends to modify the experience.
3. Introspection is difficult because we are primarily interested in events of the external world.
4. Many experiences cannot be reproduced at will —*e.g.*, fear or grief. Meaning cannot be introspected.
5. Language is inadequate to describe our experiences. Language is primarily a means of communication.
6. The results of introspection vary.

The advantages of introspection are that the opportunity and subject matter are always with us. It is useful in the study of sensation, but to be of scientific value it should be carried on by a number of experts in co-operation.

Objective Observation.

By this method the manifestations of mental processes in others are studied. The student interprets the external bodily signs shown by others on the analogy of his own experience. Here it is important to criticise our language, which may be misleading when dealing with the mental state of animals, etc. This method is used largely in abnormal psychology and in the study of children.

Objective psychology studies

1. Customs.
2. Beliefs.
3. Mythologies.
4. Child life.
5. Crime.
6. Insanity.
7. Social conditions.

In short, it observes the conditions and occasions of experience.

The behaviourist school of psychology hold that introspection is not the only method of observation in psychology. The extreme members of this school neglect the findings of introspection, and say that psychology is simply the study of behaviour. But introspection cannot be entirely excluded.

Experimental.

In this method, observation is under prearranged conditions.

The special function of the experimental method according to Tichener is that an experiment is a trial test or observation made under special conditions, the object of the conditions being to

(*a*) Render it possible for anyone to repeat the experiment.
(*b*) Help to rule out disturbing influences and so get pure results.

The experimental method is of little use in experiments on the association of ideas, since continuity of interest is lost.

In experimental psychology, note

1. Time taken.
2. Quantity
3. Excellence } of task.
4. Difficulty

Also record

1. Respiratory rate.
2. Heart beat.
3. Involuntary muscle movements.
4. Glandular secretions.

The experimental method is also concerned with quantitative tests. A science becomes more exact as it deals with exactly measured quantities, and much work has been done in measuring the duration and intensity of psychical processes.

The duration of simple mental operations is measured by reaction time experiments carried out by means of Hipp's chronoscope recording $\frac{1}{1000}$ second. The production of the stimulus sets a clock going. When the reactor reacts, he presses a button and stops the clock.

Reaction time experiments may be divided into **simple, choice,** and **associative.** The simple reaction may be divided into *muscular* and *sensory*.

In the **simple** reaction, the responsive movement follows at once on becoming aware of the stimulus.

In the **choice** reaction, the responsive movement is restrained until certain connections are formed in consciousness. On seeing a red light the right hand is raised. On seeing a blue light the left hand. The reaction time is therefore longer than in the simple reaction, about $\frac{1}{10}$ sec. longer.

The **associative** reaction calls upon the reactor to respond to any word by saying its opposite. Time in this case is $\frac{1}{10}$ sec. longer than in the choice reaction.

In the *muscular* form of the simple reaction, the reactor is directed to hold his attention from the onset upon the movement to be made in response to the stimulus.

In the *sensory* form the reactor holds his attention on the sensory stimulus and withholds the reaction movement until he has thoroughly sensed that stimulus.

The muscular form of the simple reaction experiment is shorter in time than the sensory form, for in the muscular form the reactor need not wait until he is fully aware of the stimulus. Therefore, with practice he reacts without any distinct consciousness of the stimulus. The stimulus, as soon as it begins to operate, produces simultaneous sensation and reaction. But in the sensory form the reactor waits until he is distinctly aware of the sensation before reacting, hence the time is longer.

The time in the simple reaction experiment varies with the nature of the stimulus. There is also variation amongst individuals and a variation according to the time of the experiment, hence there is variability of reaction in all reaction time experiments. In all cases it is longer than the reflex.

	Muscular.	*Sensory.*
Light	180σ	270σ
Sound	120σ	225σ
Pressure	110σ	210σ

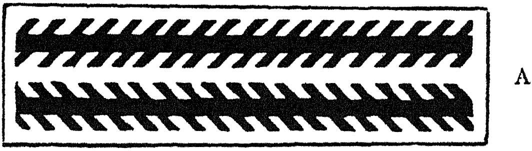
Sigma $= \sigma = \frac{1}{1000}$ sec.

Measurement of the Intensity of Psychical States.—The unit of measurement is the difference between two intensities, A and B. The difference in loudness between A and B may be equal or not to the difference in intensity between A and B (sound). A scale of increasing gradations of intensity is formed, and other intensities are arranged in relation to this. The difference between two intensities which makes it just possible to be aware of a difference at all is the least perceptible difference, and this is the unit of most use.

The external manifestations or conditions and the presented object may also be measured. In measuring the external manifestations, note is taken of the circulation of the blood and the movement of the lungs under the stress of emotions and feelings.

The external object can be measured by gauging the geometrical illusions of visual perceptions.

The two lines below are parallel, but appear to converge towards A.



Substitute lines which are really convergent in such a manner that they appear parallel under similar conditions. The degree of convergence required for this purpose measures the amount of the illusion.

Electro-Encephalography. (E.E.G.)

Electro-encephalography is a method of recording the electrical activity of the brain. The activity of the nerve cells of the cortex is associated with action potential changes that can be picked up by electrodes placed on the head and that show themselves as rapid oscillations that can be recorded after amplification.

Berger showed that these potential alterations resulted from the electrical activity of the cortex. Later it was found that under favourable conditions the alterations in action potential arose from an area on the outer surface of the occipital lobe which is associated with vision. These potential waves are Berger's alpha waves or the Berger rhythm.

The electrical activity of the cortex is altered during sleep and the alpha waves are replaced and interpolated by waves of lower frequency, the delta waves. Changes in rhythm may also take place in hypoglycæmia, epilepsy and in some mental disorders. These changes may give rise to abnormal electroencephalograms but the exhibition of this cortical dysrhythmia is not constant or particular to any one individual condition.

Electro-encephalography offers a means of investigating psychological phenomena in their relation to cortical activity and, with developing technique, should throw light upon the association between mental and cerebral processes.

CHAPTER IV

COGNITION, CONATION, AFFECTION

KANT stated that there are three distinct modes of being conscious of an object. There is the cognitive mode, the mode of feeling attitude or affection, and the conative mode.

Under **cognition** is included the presentation of an object to consciousness—the fact of knowing—together with the subjective attitude of judgment, believing or disbelieving. Therefore cognition consists of simple apprehension together with judgment. Simple apprehension by itself is found in day-dreaming where the questioning attitude does not arise, and belief or doubt, and hence judgment is in abeyance.

Stout includes under the heading of interest, feeling attitude and conation. Interest is striving or desiring together with the feeling attitude of pleasure or displeasure. Throughout the development of the mind the cognitive side co-operates with interest. Interest progresses towards its own satisfaction. But this progression is only possible by the development of cognition, by finding out how to satisfy itself. Hence cognitive development is inseparably connected with conative development. Cognition and conation are different aspects of the same process. Conation supplies the process, cognition gives the process its determinate character.

Conation and Affection.

The conative side of our nature is the active side. Conation is the felt capacity for striving, all longing, wishing, craving, desiring, and willing is summed up under the heading of conation.

There are three levels of conative process which are connected with three levels of mental development:

1. On the perceptual plane conation is present as the perceptual impulse and issues in bodily movement.
2. On the plane of train of ideas, conation becomes desire.
3. On the ideational plane the conative impulse is present as ideals.

Conative experience is the felt impulse to action. It may take the form of a mere craving for an indefinite goal, or of definitely directed desires. All resolving, willing, and choosing are fruits of the conative impulse.

Conation and its Satisfaction.—When conation is fulfilled or satisfied, it disappears in its own satisfaction. Hunger vanishes on eating. Thirst disappears on drinking. Conation and its fulfilment can never coincide in the same moment of consciousness. If this were so, the conative impulse would be merged in its fulfilment, and therefore would not be felt. Hence there is always some delay before complete satisfaction is reached. Satisfaction may come by stages, so that at the end of each stage we remain partially unsatisfied, or we may not be even advancing towards full satisfaction, as when curiosity is aroused, and there are no means present of satisfying it.

Conation may die of disappointment or fatigue, or it may be replaced by other interests for a time, but the conative impulse is of great strength, and tends to persist, especially in the well-organised mind. This persistence of conation is shown by the subconscious working of the conative impulse. If a name is temporarily forgotten and other things are allowed to occupy the mind, it is frequently found that suddenly the required name arises to consciousness. The conative impulse has been working subconsciously all the time, seeking its own satisfaction. Waking at a fixed hour and holding an article in the hand during sleep are other examples of the persistence and of the subconscious working of conation.

Conation and its Object.—The object of conation is its end. Complete satisfaction of conation is its end state or terminus. The end should be distinguished from the end state. The end or object of conation is the conditions of fulfilment as the subject thinks of them previous to their actual occurrence. This view in advance may be but a fragmentary vision; it may be true or merely illusory. But the point is that without some, even though vague, knowledge of what we want, there would be no conation but only a mere restlessness, a blind, undirected longing. Some clue is necessary so that our striving consciousness may not be entirely at sea. But it should be noted that in many cases we only discover what we really want in the process of attainment.

The end state or terminus is reached when the conative impulse is satiated. It will be seen, then, that the total object or conative consciousness includes two parts: the one part that which appears as the end, the other part that which appears as the means. The end is desired for its own sake. The means are desired because without them the end cannot be attained, and the means are therefore part of the object of conation. When the means are unspecified, the end is vague. We know fully what we want only when we know how to attain it or see that it is unattainable.

Trial and failure mark the course of the conative impulse towards satisfaction. The object of conation always includes some change in the actual circumstances, something to be added or removed. When something has to be added, conation is called 'appetition,' the positive phase of the conative impulse. All longing, desiring, and hoping belong to the positive direction of conation.

When something has to be removed, conation is called 'aversion,' the negative direction of striving consciousness. Dislike, regret, and hatred are all aversions.

Hence, in conation five points may be distinguished:

1. Appetition, the positive phase.
2. Aversion, the negative phase.
3. Degrees of intensity or temper.
4. Persistence.
5. Feeling tone.

On the level of the perceptual plane conation issues directly in bodily movement. The perceptual conations are perceptual impulses to immediate action. On the plane of train of ideas conation dwells on the idea of its end and the ideally conceived means of its attainment. Desire takes the place of perceptual impulse. On the ideational plane, the ends become more complex, more remote, and less particularised. These ends become ideals—the moral idea—which perhaps cannot be realised but can still be pursued.

Again, on the higher planes of intellectual development there is a tendency for conative impulses to become organised into unified systems. Each end is pursued, not so much for its own sake, but as a means towards the fulfilment of other ends. The conative tendencies become organised and form part of a general plan of life. This is not the case in animals. Here we find only a series of isolated and detached impulses. Hence animals have no personality—no unity of self—for it is through the organisation of conative tendencies that the self possesses and recognises its own unity and identity. The self, striving and suffering in the past, is identified with the self of the present and with the self of the future by continuity of interest or conative continuity.

In conative unity the subject continues to strive, varying the nature and direction of his striving. The self is a unified system of interest—the arbiter between alternative lines of conduct. Voluntary decision is an appeal to the self, an appeal to the unified systems of conative tendencies.

It will be remembered that conation was described as the felt capacity for striving. James's view is that all conative experiences are simply a special variety of sensation, kinæsthetic or motor sensation. When conation is at work, there is either conscious or subconscious muscular action taking place. The muscles contract and stimulate the sensory nerves in muscles, joints, and tendons, and the sensations so excited are the experiences of striving. This view he bases on his own introspection.

McDougall does not agree with this view. He finds that the sense of effort in conation varies independently on muscular strain. He points out that in patients suffering from 'shell shock' there may be very intense conative effort, but there are no sensory kinæsthetic qualities aroused. Also, according to James's view, it would be impossible to know how much effort it would be necessary to put forth until the muscles contracted.

Conation and Pleasure and Pain.—Whatever furthers conation in the attainment of its end yields pleasure.

Whatever hinders conation in its fulfilment yields pain.

Bentham and the psychological hedonists hold that conation succeeds affection and is determined by it. The order in that case being

1. Cognition.
2. Affection.
3. Conation.

Stout states that feeling tone and conation coincide in time, and from the beginning a pleasing process tends to maintain itself.

The rival theory to psychological hedonism is the hormic theory (ὅρμη = an urge). According to this view, affection succeeds conation, and the order would be

1. Cognition.
2. Conation.
3. Affection.

The hormic theory is supported by Aristotle, Schopenhauer, and the Scottish school. Freud, Wundt, and James oppose it. McDougall states that probably the natural order is

1. Cognition.
2. Conation.
3. Changed cognition.
4. Affection.

Hedonic tone is a generic term for pleasure or displeasure. A mental process is said to be pleasantly or unpleasantly toned. Emotions, fear and anger, and sentiments, love and hate, are other varieties of feeling attitudes. In emotion there is a specific feeling attitude distinct from being pleased or displeased, but hedonic tone is also present. The affective attitude of pleasure or displeasure is always present, but the same objects do not always please or displease. This depends on

1. Mood.
2. Form in which they are combined or contrasted.
3. The frequency of their occurrence.

If feeling attitude is compared with sensation, the following differences will be noted:

1. Sensation is always uniform.
2. Sensation never loses its separate identity.

Feeling attitude, on the other hand, may be blended. Melancholy is usually blended with sorrow, but there may be pleasing melancholy (Stout)—Parting is such sweet sorrow.' The pain of parting is tinged with the anticipated pleasure of reunion. All pleasures and pains which are conditioned by success or failure presuppose conation. Affection presupposes conation. Conation presupposes affection.

When an organism is submitted to any stimulus, the consciousness that the organism has of that stimulus is the affect, affection or feeling. Feeling is the consciousness of what is happening inside our organism. A state of feeling is the most fundamental state of consciousness perceptible, and is a guide to the effect of the surroundings upon the organism. The affect is not an attribute of the object itself, it is something added by the organism. Distinguish between pain as a sensation and pain as an affect. Pain as an affect is not localised; it is diffuse, and pervades the whole organism. Affection has no special sense organ; it is vague, and on trying to introspect it, it tends to vanish. It has quality, intensity, and duration, but lacks definite form.

Affection is accompanied by physical changes differing according as to whether the affect is painful or pleasurable. A *painful* affect gives

1. Vaso-constriction.
2. Pallor.
3. Feeling of cold.
4. Lack of muscular tone.
5. Diminution in bodily secretions except lachrymal.
6. Vocal weakness.
7. Diminished depth of respiration.

A *pleasurable* affect gives

1. Increased muscle tone.
2. Increased depth of respiration.
3. Increased pulse rate.
4. A confident bearing.

It will be seen, then, that

1. Whatever conditions further and favour conation in the attainment of its end yield pleasure, and whatever hinders conation yields pain.
2. Affection and conation from the beginning appear to coincide—a pleasing process is a process which tends to maintain itself. Considered physiologically, conation in general appears to correspond to a disturbance of nervous equilibrium, and its completed satisfaction is a restoration of nervous equilibrium. Displeasure disturbs nervous equilibrium, and also obstructs the processes by which it tends to be restored (Stout).

Marshall's Theory of Affection.

Pleasure depends on a surplus of stored energy acquired during the inaction of the organ. When this surplus does not exist, or has been consumed, the experience will be neutral so long as repair keeps pace with wear.

If wear outruns repair, the corresponding experience is unpleasant.

Stout criticises this theory, and points out that it does not account for the pleasure and pain of perceptual and ideational activity.

CHAPTER V

ATTENTION AND APPERCEPTION

ATTENTION may be defined as the work of the mind upon its object. It is the focussing of consciousness on some particular sensation or thing. McDougall says that the fundamental condition of attention is that some object shall arouse some conative disposition, evoke the hormic energy in the form of the impulse of some instinct. This is spontaneous attention.

Stout points out that attention is conation defining itself in cognition, and so guiding itself by cognition. Attention is the same thing as conation considered in its cognitive aspect. Stout makes use of an apt metaphor when he says that attention is the light used by conation to make out its path. Hence attention is simply conation, a conation that is satisfied by a greater knowledge of its object.

James defines attention as the taking possession of the mind, in clear and vivid form, of one, out of what seem to be several possible objects or trains of thought. The taking in or not taking in of experience is due to the attitude assumed by the subject, and this attitude is attention. Attention is an essential feature of all mental activity.

The Field of Consciousness.

The total number of objects before the mind at any particular moment is the field of consciousness. This field of consciousness may be divided into the field of inattention and the field of attention. In the field of attention is the clearly apprehended object.

The field of inattention consists of objects not specially discerned, apprehended implicitly and not explicitly.

Implicit awareness is subconsciousness — things that are present to the mind but not separately discerned; parts of a whole, the whole being explicitly discerned, but the parts implicitly discerned. The presence of the contents of subconsciousness is shown by the fact that we are aware of them when they cease to be subconscious. While the clock is going we are only implicitly aware of its ticking, but when it stops we become aware of some change in the environment. Again, subconscious contents help to determine our sense of our general condition and situation at the moment. 'They tell on conscious life as sunshine tells on a landscape.'

The contents of the subconscious wait in the antechamber of attentive consciousness, and are admitted in proportion to their intensity and interest (Stout).

The Unity of Attention.

The unity of attention is unity of interest. Interest is latent attention. Attention is interest in action. Can we attend to more than one thing at a time? This can only happen pathologically, but the same attention process can at the same time be concerned with a number of different objects, providing that the objects are parts of the same whole. The process of thought must be concerned with objects which are in some way connected. Unity of interest, which is unity of attention, is only present when we are interested in the same object. We can do two things at the same time by means of habit, but we cannot attend at the same time and in the same attention process to different objects.

Varieties of Attention.

Attention may be divided into *voluntary* attention and *non-voluntary* attention. Voluntary attention may be *implicitly* voluntary or *explicitly* voluntary. Non-voluntary attention may be *enforced* or *spontaneous*. Voluntary attention is attention to anything that interests us as a means to an end. If it is explicitly voluntary, there is a strong volition to attend. 'I WILL pay attention.' In implicitly voluntary attention there is no express volition to attend. Attention that is brought about by the intensity or the suddenness of the stimulus is enforced attention—a thunder clap. Spontaneous attention is attention that is conditioned by preformed interests or natural bias. It is the function of voluntary attention to create spontaneous attention. Voluntary attention requires effort, time, and patience. In time interest comes. Voluntary attention is essential for mental discipline and the training of character.

Expectant Attention.

While all attention is expectant, the term is rightly applied to something anticipated, but requiring for further development an actual sense perception. In hunting for a lost object, we notice what we expect to find in preference to other objects. Expectant attention may be the cause of illusion. We see what we expect to see in place of what is really present.

The power that a stimulus has to attract attention depends upon its factor of advantage. There are three general *factors of advantage* in attention:

1. The factor of habit. This depends on past experience.
2. The native factor, which comprises a quality or qualities of the stimulus itself. Intensity, definite form, and change are native factors.
3. The factor of present interest.

Special Factors of Advantage are

1. *The nature* of the external stimulus.
2. *The intensity* of the external stimulus. Change in the intensity is of importance.
3. *The extension* of the external stimulus. Strong states that the attention given to advertisements varies as the square root of the space occupied.
4. *The novelty* of the external stimulus. Here movement and contrasts are of importance.
5. *The suddenness* of the external stimulus. Suddenness and intensity excite the instincts of fear or curiosity, but if the source of the stimulus is known, attention is not unduly excited.
6. *Change* in the external stimulus. Change may be in intensity, quality, or position.
7. *Repetition* of the external stimulus. Here there is summation of stimuli, as in the repetition of the same musical notes.
8. *Striking quality.* High notes are more striking than low.
9. *Definite form* of external stimulus. A bold outline attracts attention more than an indefinite shape.

All the above are conditions of active attention.

We attend to what we are interested in. James remarks that while the visitor is attending to the beauties of the palace, his dog is only interested in the smells. Interest here is conation.

Predispositions to be interested are due to

1. Native bent.
2. Associations formed in past experience.
3. Dispositional interests which are conditions of conation and feeling. The doctor may sleep through a thunderstorm, but the sound of his night bell arouses him.

The Laws of Attention.

During the growth of psychology various laws of attention have been formulated. The following six laws incorporate their salient features (Woodworth):

1. *The Law of Selection.*—Only one attentive response is made at one time.
2. *The Law of Advantage.*—One of two alternative responses has an initial advantage over the other, due to such factors as intensity and change in stimulus.
3. *The Law of Shifting.*—The response that has the initial advantage loses its advantage shortly, and an alternative response is made providing the situation remains constant. Attention is therefore mobile, because it is exploratory.
4. *The Law of Tendency* in attention. A tendency facilitates responses that are in its own line and inhibits other responses. A tendency limits the shifting of attention and is a strong factor of advantage.
5. *The Law of Combination.*—A single response may be made to two or more stimuli, or two or more stimuli may arouse a single response. A unitary response is made to a number of separate stimuli.
6. *The Law of Degrees of Consciousness.*—An attentive response is conscious to a higher degree than an inattentive response made at the same time. The less familiar the response and the higher it stands in the scale of mental performances, the more attentive and the more conscious it is.

Marginal Awareness (Stout) is a borderland between attentive consciousness and subconsciousness. It tends to occur in states of emotion, and is transient. Often while under the stress of emotion irrelevant details are discerned and remembered, although they are not attended to at the time; complete inattention is hardly ever found. It is rather volatile and disjointed, except perhaps in mania.

The Affective Tone of Attention.

By the affective tone of attention is meant the conditions of pleasure and pain that are present in the process of attending. When a maximum effort of attention is exercised effectively, there is a proportionate production of pleasure. If effective attention is hindered by distraction, faulty adaptation or shocks, a painful tone follows. Repetition of the same stimulus after interest has been exhausted yields pain, since there is a restriction of mental activity. Therefore variety is necessary for the free play of attention. But too much variety is painful.

We seek to avoid paying attention to displeasing objects and to maintain what is agreeable. But in order to avoid the displeasing, active adjustment is necessary which involves attention. Nevertheless, there are two character types, the evader of the displeasing and the amender of the displeasing.

The Efficiency of Attention.

The goal of attention is more adequate and more distinct apprehension of the object. Attention seeks to introduce order and distinctness and bring out the unity of the object. The efficiency of the attention process in producing this result depends on

1. The degree } of consciousness.
2. The duration } of consciousness.
3. The nature of the object.
4. The habitual direction of attention.

Adaptative Motor Reactions in Attention.

The muscular system and the organs of special sense are in a state of activity during an attention process. Attention is in part a motor reaction.

1. Accommodation of the eye.
2. Turning the head in listening.
3. Tasting.
4. Sniffing.
5. Moving the hand over surfaces.
6. Posture of the body.

Note the imitation of movements that are made by a crowd attending to a spectacle like a football match. By a process of attention children and animals learn to imitate the actions of others.

Limitations of the Span of Attention.

Much experimental work has been done on attention, and there are several tests for attention. The word and picture building tests are used largely in children. Note that inability to attend may mean that the subject is attending to something else. It was found during experiments on the limitation of the span of attention that only five lines, points, or letters could be discerned at the same time. It has been pointed out previously that only one attentive response could be made at one time, but any number of points up to five can be discerned because the points are not in isolation, but form a numerical group. Whenever we attend to many things at once, we attend to their interconnections, so that the total object is a single whole, but not a simple whole.

The partial features of the total object are apprehended successively as well as simultaneously. Eight taps with a hammer can be distinguished from seven without counting. Beyond eight the judgment is unreliable.

This successive discernment of the partial features of a single object in relation to each other is especially characteristic of attention. We are mentally active in making the object gradually disclose its nature and relations with increasing fulness of detail. This is what is meant by saying that attention is a felt tendency to dwell on the object so as to develop it.

In pathological conditions and in some mental disorders the faculty of attention may become impaired.

Conscious attention may be particularly disturbed in cases in which the contents of the subsconscious are seeking conscious expression and where attention is entirely occupied by antagonistic complexes resulting in conflict.

In aprosexia there is an inability to fix the attention varying from a mild impairment to complete absence of attentive awareness. This condition is typically seen in toxic and organic conditions, in schizophrenia and depressive states. It may also be encountered in the psychoneuroses.

Hyperprosexia or increase of attention is usually found where a delusional scheme occupies the mental content to the exclusion of other attentive processes.

Distractibility of attention is a common and characteristic sign in acute mania, while passive or spontaneous attention is often wanting in mental deficiency, particularly in idiots, who may lack the minimum attentive process necessary to self-preservation.

APPERCEPTION.

The successive discernment of the partial features of a single object in relation to each other is apperception or apperceptive synthesis. Apperception consists of a changing of old perception by new perceptions. It is a blending of the old with the new. Apperception may consist in the successive discernment of items already consciously present—*e.g.*, orchestra and the instruments comprising it; or it may involve the getting of new sensations by active movements of the body and sense organs—*e.g.*, 'ringing' a coin. In every instance there are processes of identifying, interpreting, and classifying, by which the object is brought into relation with the results of previous experiences, which are retained and organised in mental dispositions. The fragmentary is supplemented, expanded, and connected, and the whole fitted into place in the preacquired system of knowledge, belief, and imagination.

Apperception is involved in all distinct perception—*e.g.*, wet ground—and especially in all attentive perception—*e.g.*, a footstep on the stairs, sound aided by previous experience. The data given by sense impressions supply but a small part. The greater part is due to apperception (Stout). With familiar objects and surroundings apperception takes place easily and swiftly, and requires little attention. The apperceptive process is more prolonged and difficult, and more attention is needed when unfamiliar objects or new surroundings are involved. If there is lack of interest, apperception does not occur.

The use of language leads the developing mind to effect processes of apperceptive synthesis, and thus a simplification of language is produced which reflects a simplification of the mind's structure. In place of a separate name for every class of objects which are essentially similar, we have names corresponding to larger classes, the members of which resemble one another less obviously or in less immediately and practically important respects. In this way primitive man's rough classification of the animal world has been refined by successive apperceptions involving the discovering of homologies, until the present scientific classification has been evolved. Apperceptive synthesis is, therefore, a process of great importance in the higher development of the intellect. By it all remote resemblances are discovered, all analogies, homologies, similes, and metaphors. It is an essential part of all the higher operations of the mind (McDougall).

The psychologists of the school of Herbart thought of the mind as consisting of a collection of 'ideas' arrayed in a fixed order lying in the subconscious portion of the mind. The apperception of a sense impression according to this view consists of ideas of similar objects arising out of the subconscious to usher the newcomer into its proper place.

McDougall states that apperception involves the discovering of similarities between objects and classes of objects which we have already discriminated and distinguished from one another. The process of apperception consists of a fusion of two cognitive systems—two systems of 'knowing' into one larger system. Discrimination is the discovery of differences; apperception is the discovering of similarities.

The process of apperception may work in two ways:

1. *Explicit apperception*—reproduction of similars.
2. *Implicit apperception*—intuition.

1. In reproduction of similars the perception of a certain object impels one to think explicitly of a certain other object. The formation of abstract ideas involves apperception. Some quality of one thing suggests another unlike thing that has the same or similar quality. This quality is then discriminated and named, and we are able to think of the quality apart from all particular things—*e.g.*, beauty. The

abstract quality of beauty may be applied to a view, a woman, a picture, or a jewel. It is by a process of apperception that the abstraction was originally formed. The total process involves discrimination, apperception, and association—the three processes of mental growth.

2. Implicit apperception is in intuition. Some subtle conjunction of sense-impressions that cannot be analysed determines one conative emotional reaction—*e.g.*, love (McDougall).

The logical structure of the mind is produced by discrimination and apperception. It appreciates the differences and the similarities of qualities and things.

Apperceptive synthesis may be defective and volitional behaviour may be affected resulting in obsessional ideas, since conduct is influenced by apperception. In folie de doute and in obsessional compulsive states the primary psychological factor is failure of apperceptive synthesis.

CHAPTER VI

MENTAL DISPOSITIONS

MENTAL dispositions are unconscious factors connected with consciousness. Most of our mental acquisitions are owned by us as mental dispositions or mental traces, and are not present in the form of actual consciousness. They are capable of being recalled, and they contribute to influence the subsequent course of life history.

Mental dispositions or psychical dispositions are

A. **Acquired.**
B. **Inherited.**

A. ACQUIRED mental dispositions are abiding after effects left behind by prior experiences. They are unconscious factors connected with consciousness, but not present in the form of actual consciousness. The previous experience contributes to determine the nature of the present experience. They are constantly being formed and modified by conscious processes, and they help to modify and determine subsequent conscious processes. When compared with the contents of conscious life, they are more stable and relatively unchanging. Conscious activity is aided by mental dispositions, and the conscious result is order.

Proofs of the Existence of Mental Dispositions (Stout).

1. We know that mental dispositions exist because of their effects; they determine psychical processes.

2. Their nature is defined by their function and their origin, by the way they condition the flow of our cónscious life, and by the way they are produced and modified by conscious processes.
3. They are mental facts because their whole meaning and significance lie in their relation to consciousness and its various modifications.

B. INHERITED dispositions or congenital predispositions.

Congenital predispositions are innate aptitudes and innate propensities. They consist partly in

1. An original capacity for feeling interested in certain directions.
2. An original power of rapidly learning and firmly retaining what has been learnt.

Congenital predispositions play an important part in the growth of spatial perception.

Physiological Dispositions.

Processes taking place in the brain modify the structure of the cortical substance. This modification contributes to determine the nature and occurrence of subsequent brain processes. These have physical existence and are material. A psychical disposition may be represented on the physiological side by a permanent modification of the brain substance. That is not the same as stating that the physiological disposition is identical with the psychical. The two aspects of their nature are distinct, and must be studied separately like body and mind.

Psychological disposition is a name for the psychical and physiological aspect of mental dispositions taken conjointly.

Interpenetration of mental dispositions (Stout). In this case the mental dispositions have a common factor. The resemblance that one man may bear to another pernaps only consists of a similarity of one feature, yet this is sufficient to remind me of my friend.

Cumulative Disposition.

A cumulative disposition is generated by continued attention to the same total object. It is the resultant effect of the entire process of a whole. Cumulative dispositions are formed early in mental life in connection with active movement. Through a series of trial and error experiments the child learns to grasp articles with his hands, aided by sight and touch. These experiments give rise to a total disposition—a cumulative disposition—which, when it is fully organised, enables him to grasp with ease.

Continued attention depends on the formation of such a cumulative disposition to which each stage in the development of the total object contributes. Continuity of interest is only possible if and so far as each succeeding stage of the attention process is determined and qualified by the cumulative disposition left behind by preceding stages. Conjointly with this, each new presentation modifies the cumulative disposition, as in the case of music, where the cumulative disposition left behind by the previous notes co-operates with the new stimulus. Throughout the process the part is determined by the whole and the whole by the part.

Note the persistence of dispositions is not constant. They tend to decay, and require to be maintained by renewal of the corresponding mental process connected with them.

RETENTIVENESS.

The law of retentiveness states that when mental development takes place through mental conditions, it does so because specific experiences leave behind them specific traces or dispositions which determine the nature and course of subsequent process, so that when they are modified it is modified. It should be noted that the apprehension of immediate experience in the way of sensation involves the apprehension of objects that are not immediately experienced. These objects are thought of as being independent of what passes in the mind in the moment of our knowing them—*e.g.*, the sound of a bell and the bell itself. It is because presentations leave behind them traces or dispositions that the connected objects are capable of being retained or revived.

Primary retentiveness must be distinguished from the retentiveness involved in reproduction and association. Primary retentiveness is the cumulative effect of the preceding phases of a conative process on the succeeding. The meaning which is involved in all continued attention to the same total object is primary acquired meaning, and must be distinguished from that which depends on association and recall.

During the process by which dispositions are formed, they acquire certain connections with each other. These connections are called associations. In attending, we successfully focus various features and aspects of the total object. When subsequently we again notice some partial feature of the object, other features emerge successively into the focus of attention. This mental reinstatement is due to association, and the reinstatement itself is recall, revival, or reproduction. In learning to drive a car, the clutch pedal becomes associated with the gear lever. On attending again to one of them, the other emerges into the attention process by association.

ASSOCIATION.

Association is an acquired connection of dispositions formed in the course of conscious experience, and is a condition determining subsequent conscious experience. But as the dispositions lie outside conscious experience, so do their connections lie outside conscious experience. Hence the dispositions and their associations persist when we are asleep.

The dispositions are physiological as well as psychical, and their union is a physiological as well as a mental fact. Association, therefore, is an acquired psycho-physical connection between psycho-physical dispositions or between a psycho-physical disposition and a purely physiological arrangement. All motor associations are connections between a psycho-physical disposition and a physiological arrangement.

Continuity of attention is necessary for the formation of associations. If the continuity is direct, we have

1. Association by contiguity.

If the continuity is indirect, there is

2. Association by similarity or contrast.

1. Association by Contiguity.

In association by this method the sequence of ideas follows the order in which their objects have been attended to in previous experience. Mental activity, when partially revived, tends to repeat itself; this it can only do if its original direction and order are reproduced.

That the law of contiguity is not sufficiently comprehensive has been shown experimentally by Ebbinghaus. It should also be noted that, in describing an object, all the details which are actually observed are not mentioned in the exact order in which they were noticed. The description passes from one salient and distinct feature to another. The predominating interest of the original experience and the predominating interest at the time of recall determine a selection of items which are not tied down by the condition that objects which introduce each other in the train of ideal revival must have been attended to in immediate succession

The most important condition of association is not simple contiguity in the sense of temporal continuity of attention, but continuity of interest. If the dominant interest is weak, there is a tendency to repeat the original order exactly. This is well seen in the feeble minded and, of course, where there is an interest in exact repetition, as in learning by heart.

2. Association by Similarity.

In association by similarity, objects tend to remind us of their similars or of their contrasts. Contrasts or similarity between objects are aroused by parts of objects rather than by the whole object. Hence association by similarity may be reduced to association by partial identity.

Reproduction by similars involves

1. Serial recall.
2. Crossed or divergent recall.

In *serial* recall we attend again to a train of objects in the order in which we have previously apprehended them. In *crossed* or divergent recall, A might suggest Z. Z need not have ever been before the mind in connection with A, and so the revival of similars by crossed recall is a source of novel combinations.

The reproduction of any *particular* association depends on

1. Recency } of association.
2. Frequency } of association.
3. Vividness of original experience.
4. Degree of attention aroused.
5. Mood at time of recall.
6. Interest, especially personal interest.

A train of ideas has two aspects (Stout):

1. The reproductive aspect—*Association.*
2. The productive aspect—*Ideal Construction.*

Ideal Construction.—The ideally revived objects are transformed and modified by the conditions under which their reinstatement takes place. They form new combinations and new connections. The essential nature of all ideal construction consists in the discovery of fresh possibilities. Here the work of the mind is rather a finding than a producing. It is a finding of possibilities that have not been apprehended as actual.

In the manic phase of manic-depressive psychosis the prevalent mood is one of excitement and elation, and here original connections are formulated in the finding of possibilities in association that manifest themselves in the so-called clang and rhythm association.

MOTOR ASSOCIATIONS.

A motor association is an acquired psycho-physical connection between psycho-physical dispositions and a purely physiological arrangement.

Mental and nervous processes are intimately connected. The mental life from the beginning is constantly connected with impulses passing from the central nervous system to the rest of the body, resulting in changes in the internal organs and in contractions of the muscles.

The special movements connected with special experience are due to

1. The inherited constitution of the central nervous system, reflex action and instinctive motor activity.
2. Acquired connections through motor associations.

Motor associations are formed and controlled by interest and collective attention. The occurrence of some signal sensation acquires a meaning, and when this acquired meaning is reproduced, an appropriate movement occurs in time to avert an impending ill. A painful sensation gives rise to diffuse movements; one of these gives relief, and is repeated on similar occasions. The same holds good for pleasure as well as pain. Whatever modes of behaviour that yield or maintain pleasure are stamped in by association so as to recur whenever occasion for them arises (Stout).

Motor associations can give rise to movements only when the appropriate objects are actually present to the perception of the senses. When a motor association has become fixed in relation to frequently and uniformly recurring conditions, it may operate independent of attentive consciousness. This is automatic habit. At a recent athletic meeting a guardsman was competing in a race. His commanding officer was one of the spectators. When the guardsman saw the officer he stopped running, and standing at attention he saluted, and so lost the race. Here a motor association is so fixed that it has become an automatic action.

In motor association the associations do not operate by directly providing the experiences themselves, but by renewing the bodily movements on which they depend. This mode of reinstatement through motor activity, guided by motor associations, is primitive, and found in children and animals where trains of free ideas are absent. Its occurrence is characteristic of perceptual process.

Organic sensations are reinstated in the same way. Change in the state of the internal organs is determined from within the body largely by changing conditions of the central nervous system.

Any strong nervous disturbance tends to discharge itself over the whole organism, affecting respiration, heart beat, tension of muscles, circulation of the blood, secretions, etc. Such a nervous disturbance may be originated by an external impression—a blow. But it may be afterwards more or less renewed by association without the external impressions, and it may then centrally generate organic sensations bearing a marked resemblance to those which accompanied its original occurrence. The physiological stimulus is indirectly reinstated, and it directly produces the sensation (Stout).

RECALL, REPRODUCTION, OR REVIVAL.

Recall is the effects of association in conscious process. Reproduced meaning is an idea, and intelligent learning by experience is due to meaning reproduced.

Forms of Reproduction.

1. Direct explicit revival.
2. Indirect explicit revival occurring through motor associations.
3. Implicit revival.

In *direct* explicit revival the constituents of previous experiences emerge into consciousness with the same distinctness and independence that they possessed in their original occurrence. They take the form of mental images copying actual sensations in their qualities and forms of combinations.

On recalling a line of verse, each word is separately and successively heard by the mind's ear as it was originally by the bodily ear. Here the words are mentally recalled by direct association with the previous line.

Indirect explicit revival occurs through motor associations. Preformed associations may lead one to utter the words of the line of verse aloud without preliminary mental rehearsal. In that case there is explicit reinstatement, but it takes place indirectly through movements depending on motor association, and it would take the form of sensations produced anew, not of reproduced mental images. This form of reinstatement is peculiarly characteristic of perceptual processes as distinguished from trains of ideas (Stout).

In *implicit* revival there is an unconscious background. Without past experience being recalled in distinct detail, it may invest the details which actually are present at the moment with a certain relational significance—a sense of their meaning and bearings. The preacquired knowledge which determines our present thought is only to a relatively small extent present to consciousness in distinguishable detail. To a far larger extent it is operative implicitly. Stout says we are constantly proceeding on what are called unconscious assumptions. We speak to a man on the assumption that he is capable of hearing, and we only discover that we are making an assumption when he turns out to be deaf. Some partial feature of a whole points the way to recognition of the whole aided by implicit revival.

Mental life at all stages of development involves transition from the implicit to the relatively explicit reinstatement of past experience. Beginning by apprehending a whole in its totality, we proceed to unfold its details. This may take place

1. By obtaining anew a train of sensations by repeating a train of movements which has led to them in the past. This is characteristic of perceptual process.
2. By means of mental images reproducing the details of past experiences. This is ideational process.

Preperception or Complication.

In complication the ideal revival, though not separately discernible as an explicit idea, alters the character and adds to the complexity of actual sensation. The sight of ice yields a forefeel of its coldness, the smell of baked meats a foretaste of their savour (Ward).

The revival and the original sensations coalesce into a single complex sensation. Stout calls this process complication, and distinguishes two stages:

1. Two excitations where produced together by stimulation of two sense organs.
2. If one is re-excited the other is excited. Then we get one sensation with a halo of the other sensation.

A. Ice—look and touch.
B. Look and it appears cold (Dumville).

Facilitation and Arrest.

In actual reproduction one presentation reinstates another. But in place of actual reinstatement there may be *facilitation*. The one presentation facilitates the entrance of the other into consciousness without actually introducing it into consciousness. Habit is an example of facilitation.

Facilitation is an essential characteristic of attention. It is a general attitude of response to a certain kind of stimulus. It may be a predisposition to notice, as in the case of a mother and her child. This general attitude of response to a certain kind of stimulus may persist even when conscious attention has itself ceased. The sleeping mother is awakened by the cry of her child.

The general direction of interest may also facilitate the recall of certain experiences.

Arrest is the negative side of facilitation. Whatever facilitates the occurrence of certain mental processes is a hindrance to the occurrence of others. In general, any mental process tends to hinder the occurrence of others if and so far as it does not facilitate their occurrence. The mother with her attention concentrated on her child overlooks impressions not connected with the main direction of her interest (Stout).

CHAPTER VII

INSTINCT

An instinct is an innate psycho-physical disposition which determines the organism to perceive, to pay attention to, any object of a certain class, and to experience in its presence a certain emotional excitement and an impulse to action which finds expression in a specific mode of behaviour in relation to that object (McDougall). In his later writings McDougall discards the term instinct and uses the word propensity.

James states that instinct is the faculty of acting in such a way as to produce certain ends, without foresight of those ends and without previous education in its performance. Instinctive behaviour is not for utility, but follows because it is the natural and appropriate thing to do—it is desirable in itself.

Instincts are probably Mendelian units, and are the mainsprings of volition. Life has been described as a masquerade of the instincts. An instinct is not acquired by experience, but is inborn. Note that all inborn endowments are not instincts. A reflex is an inborn endowment, but is not an instinct. The differences between the instinct and the reflex can be summarised as follows:

The *reflex* does not presuppose

1. Interest.
2. Attention.
3. Variation of behaviour according to results.
4. Learning by experience.

These four are criteria of intelligent consciousness.

5. If sensation is present in the reflex it does not generate or influence the reflex process itself. Instinct, on the other hand, is guided and influenced by sensation, and occupies fully attentive consciousness. Instinctive processes are not continued when the organism is occupied by something else.

6. The reflex occurs
   (*a*) at once,
   (*b*) without preparation.
   (*c*) An appropriate stimulus is necessary.

The instinct shows the outward marks of attentive process characterised by an attitude of

(*a*) Watching.
(*b*) Waiting.
(*c*) Searching.
(*d*) Persisting.

Therefore conative unity—*i.e.*, continuity of attention—is present in instinct.

7. Instinct profits by previous experience. Crows follow the plough. The mode of procedure becomes
   (*a*) Specialised.
   (*b*) Discriminative.
   (*c*) Generalised by transfer by association to new conditions. This generalisation involves the mental function of reasoning, and is well seen in the parental instinct.

8. A reflex is a response to a stimulus. An instinct is often a response to an object.

Very complex reflexes may reach the level of instinct. There is no sharp dividing line. As far as instinctive activity is developed and modified under the influence of experience, it becomes intelligent. Learning by experience is conditioned by

1. Attention,
2. Continuity of interest,

leading to the formation of appropriate dispositions and associations, and so to acquirement of meaning.

McDougall says that instinctive action rather than reflex action is the clue to the comprehension of human behaviour. Human behaviour is built up on a basis of innate tendencies which are in all essentials very similar to the instinctive tendencies of animals. Character is based on instinct to which has been added experience and education.

The Biological View of Instinct.

Instinct may be regarded as a special form of vital adaptation in general. It is a special preadaptation of the central nervous system congenitally determined so as to give rise to special bodily action in response to appropriate stimuli. The fulfilment of ends is beyond the knowledge of the organism.

Instinctive endowment is therefore, according to this view, merely one form of vital adaptation among others, and may be explained in the same way.

The biological view is inadequate, since it includes reflexes. Some biologists tend to regard instincts as a complex combination of reflexes.

Instinct as a Psychical Fact.

Instinctive behaviour is essentially conditioned by intelligent consciousness. The lower on the scale, the more restricted is the range of learning by experience: the higher, the more extended and varied is the field for acquired adjustments of behaviour. Insects have little to learn, because their instinctive movements are initially preadapted in a very definite and specialised way. Dogs and apes are less adapted, hence they have more to acquire, and therefore the capacity for learning what is useful to them is proportionally a more important part of their congenital equipment. A capacity for retentiveness is here involved (Stout).

Instinct is most obviously manifested in its purest form in animals. The study of animal behaviour is of the greatest use in psychology for the following reasons·

1. It explains the nature of purposive action and shows how purposive action is prevalent throughout the whole animal kingdom.
2. It displays in relative simplicity the modes of actions—usually instinctive actions—which are fundamental in human behaviour, but which are obscured and complicated by the development of the human intellect. Human behaviour is built up on a basis of innate tendencies which are very similar to the instinctive tendencies of animals.
3. It is a clue for elaborating the simple animal mind to the complex human mind.
4. It shows some of the stages which the human mind must have passed through during the process of mental evolution.

The actions of animals which seem to be purposive (exhibit the marks of behaviour) and which are performed by any animal independent of previous experience of similar situations are instinctive. In the behaviour of insects, such as ants and bees, there is a blending of intelligence with instinct, as shown in the 'homing' of bees, where past experience guides the present action.

In birds, instinct is prominent, yet modifications of all the modes of instinctive behaviour by experience is well seen. The collecting of pigeons at St. Paul's Cathedral in order to take advantage of the food supplied by visitors illustrates this point.

It will be seen, then, that instinct requires and implies the co-operation of intelligence, and without intelligence we can achieve nothing of value to the creature or the species. Intelligence operates only and always in the service of the instinctive impulses to action.

Any object that evokes an instinctive response may be compared to a key that unlocks a door. The key and the lock are unlike, but are made for each other. The key must be used with skill and perseverance. Opening the door is not a simple process like a reflex—it lets out a flood of energy of many phases (McDougall).

Instinctive action is normally initiated by complex activity of perception. The capacity for this activity is given in the innate constitution of the animal, and is a part of the total instinct.

General Principles of Instinctive Activity (McDougall).

1. An instinct may often be defined by the nature of its goal.
2. An instinct is a concrete fact of mental structure which is inferred from facts of behaviour and experience.
3. Mammals' instincts are in the basal ganglia, especially the optic thalamus, and are facilitated and supported by internal secretions and hormones.
4. An instinct has two parts—

    (*a*) The part that renders possible the perception of the specific object. This part is the lock. The specific object is the key.

(*b*) The part that determines the outflow of energy into all the bodily organs that take part in instinctive activity.

5. The excitement of an instinct excites an impulse to action—an output of energy. This impulse is variable in strength with any one instinct, according to the conditions, internal and external, of its excitement.
6. Each instinct may have an independent store of energy, or all the instincts may draw from a common store. Rivers says that every instinct obeys the all or nothing law—if it is excited at all it is maximally excited. This is probably only true for some instincts.
7. When an instinctive impulse is liberated or evoked, the organism becomes absorbed in the endeavour towards the goal of the instinct (attention). There is also a general excitement (emotion).

Appetite and Instinct.

Instinctive behaviour can only be evoked when appetite is present. This fact is especially prominent in the food-seeking and sexual instincts. Appetite is the welling up of the energy of the instinct, and is largely determined by external and internal influences on bodily metabolism:

(*a*) Food.
(*b*) Temperature.
(*c*) Hormones.

The perception of the specific object increases the appetite.

Objective Marks of Appetite.

1. Only at certain appropriate times does the specific object excite the instinctive response.

2. In the absence of the specific object—the key—appetite manifests itself in a vague restlessness or wandering.

Instinct and Emotion.

The emotions are clues to the instincts. Emotion is the mode of experience which accompanies the working within us of instinctive impulses. The operation of each instinct is accompanied by its own peculiar quality of experience—a primary emotion.

The Instincts of Mammals and of Man.

Instincts among mammals are

1. General.
2. Non-specific, because they
3. Ripen at leisure,
4. Show range
5. Variety } of movement. This requires accumulated experience.
6. Freedom
7. A capacity for retentiveness is involved. The longer the youth the higher the intelligence. In youth experience is built up.

Instinct in man is obscured by

(*a*) Acquired developments.
(*b*) Intelligence.

In man, original endowments are very variable for different individuals. The congenital equipment in man is relatively scanty, and comprises

1. Biting.
2. Crawling.
3. Making articulate noises.
4. Crying
5. Smiling } expressions of emotions.
6. Frowning

But congenital *dispositions* leading to appropriate modes of behaviour under certain conditions are much higher. There is an innate power of learning by experience, there is innate specialised interest, and there are marked innate powers of attention. All these are in certain directions instead of others. Stout says it is clear that the instinctive endowment of human beings is far more varied and complex than that of animals, if the above innate powers are considered as instincts. The whole development of human minds has its root in connate tendencies of this sort, and is inexplicable apart from them.

Behaviour Cycle in Instinct.

1. A tendency in the animal to behave in a certain way.
2. Stimulus.
3. Action.
4. Satisfaction and quiescence.

Life History of an Instinct (McDougall).

1. Gradual development.
2. May express itself partially before it becomes perfected.
3. Exercise of all the instincts is necessary to the fullest vigour and health of the animal.
4. The instincts of an animal are its very essence; all its bodily organs and functions are merely the servants of the instinct.
5. The evolution of the animal world is primarily a differentiation and specialisation of the instincts.
6. The instincts are so many differentiated channels through which the vital energy (Jung's libido and Bergson's *l'élan vital*) pours itself into or through the organism.

7. When an instinct is highly specialised, then instinctive action appears in its most striking forms. The more highly specialised the instinct is, the less scope there is for intelligence (insects). The less specialised, the greater the scope and demand for intelligence to supplement instinct (mammals).

Instinct and Motor Mechanism.

Motor mechanisms, such as flying in the young bird for the first time (in search of food), are not instincts, but the servants of instincts. McDougall states that each motor mechanism is a final common path, and serves as a channel of outlet for the energy liberated from any one of the instincts. A motor mechanism, therefore, requires an instinctive impulse for its activation. Any one instinct may make use of a variety of motor mechanism. Motor mechanisms are made up of nervous elements, which are situated largely in the cerebellum, and the cerebellum is not concerned in impulsive action nor in experience.

It will be seen, then, that any instinct is composed of

1. Perception.
2. Outflow of energy into all bodily organs.
3. Impulse to action.
4. Attention.
5. Emotion.

Differences between Natural Man and Other Mammals.

1. Natural man lives a life of instinctive impulse complicated by desire.
2. Natural man has imagination—foresight of the future in accordance with the past. Imagination gives
    - (*a*) A higher degree of spontaneity.
    - (*b*) A higher degree of initiative.
    - (*c*) Continuity of effort.

3. Use of language.
4. Purposive deliberation—*i.e.*, desire aided by imagination.
5. Growth of sentiments—*e.g.*, hatred and awe.

The Main Stages of Evolution (McDougall).

The modes of purposive striving form a graded series, and pass through the following stages:

1. The vague, almost indifferentiated striving of the amœba.
2. The striving of animals in which the instincts are sharply differentiated and directed towards specific and vaguely anticipated goals.
3. The instinctive striving of primitive man towards the imagined and anticipated goals.
4. The striving of man prompted by desire for instinctive goals, but directed also to goals as means to an end.
5. The instinctive striving of man regulated and controlled in the choice of means by anticipation of reward and punishment.
6. The striving of man regulated by anticipation of social approval and disapproval.
7. The striving of man regulated by the desire to realise an ideal of conduct and character.

McDougall classifies thirteen primary instincts that are common to most of the mammals. The following gives a brief account of each:

I. THE INSTINCT OF ESCAPE.—The instinct of flight, escape, or fear is one of the most powerful of all instincts. Some authorities call it the instinct of self-preservation, but McDougall points out that self-preservation implies the consciousness of the self, and therefore a high degree of intellectual development.

This instinct is seen at its maximum activity in animals that are not provided with adequate means of defence (rabbit).

The instinct operates in two phases:

1. Flight to shelter.
2. A lying hid in the shelter obtained. The shelter may be the congregated herd.

In gregarious animals the first reaction is the giving out of some signal, generally a cry—the cry of fear—that is peculiar to each species. The instinct is therefore excited by noise.

Caution or timidity are the faint expressions of the instinct. When strongly aroused, a state of terror ensues. Fear inhibits action, and it becomes for this reason a means of social discipline tending to keep in check impulses not sanctioned by the herd.

Bodily pain arouses fear, and the resultant mental distress is due to the fact that the goal of the instinct—escape—cannot be realised.

The trembling of the terror struck is an experience of the conflict between incompatible impulses. Note that trembling may also be found in anger. If escape is impossible, either owing to physical or moral reason, an effort is made to control fear resulting perhaps in some permanent or temporary mental or nervous disorder.

The instincts of fear and curiosity are closely allied, and enter into the proper understanding of religion.

II. THE GREGARIOUS INSTINCT.—The herd or social instinct is one of the human instincts of the greatest social importance. It moulds the forms of society. Its function is to keep members of the group together. Without the operation of such an instinct the young would be detached from the parents and no enduring group would be formed.

Advantages of the gregarious instinct:

1. Collective attack and defence.
2. Mutual warnings of danger.
3. A sharing in a traditional knowledge and in benefits secured by other members of the group.

The impulse of this instinct is to approach others, especially a group of others. Its goal is the near presence of other members of the species. The keys to which the lock of the instinct are adjusted are

1. The outward appearance of the species.
2. Their specific cries.
3. Their specific odour.

The gregarious instinct is marked by an uneasiness in isolation and a satisfaction in being one of the herd. It is strongly confirmed by habit. McDougall points out that most solitary carnivora pass their youth in a group. This is habit. But if habit was an enduring thing, they would be gregarious on attaining maturity, which is not the case. The more numerous the herd in which the individual finds himself, the more complete is the satisfaction of the impulse.

The gregarious instinct is called into play generally in conjunction with some other instinct. The excitement of any other instinct seems to predispose to the excitement of the herd instinct. This is well seen in the instincts of escape, pugnacity, and curiosity. It supplements each of the special instincts, rendering complete satisfaction of their impulses impossible until each animal is surrounded by others of the same species in a similar state of excitement. Active sympathy is necessary. We must be surrounded by others sharing our emotion. Between equals there is more than sharing, there is affection, or feeling the emotion. Hence McDougall says that the root of active sympathy is the gregarious instinct, and not the tender or protective impulses.

The gregarious instinct

1. Determines the forms of our recreations.
2. It leads men to share their emotions with the largest number possible of their fellows.
3. It keeps men together and occasions the need for social laws and institutions.
4. As mankind becomes highly civilised, its functions become less important, and it may even produce injurious results.

Primitive Passive Sympathy (McDougall).

Primitive passive sympathy is not an instinct or the expression of any one instinct, but is the capacity common amongst gregarious animals to be stirred to that kind of instinctive behaviour whose signs (*e.g.*, the cry of fear) are displayed by other members of the species. It involves the sharing of the emotional excitement that accompanies instinctive behaviour. It is literally a suffering with. Primitive passive sympathy makes life within the herd advantageous to all the members of the herd, and forms the basis of the higher developments of sociability.

Primitive passive sympathy gives rise to

1. Panic.
2. Frenzied applause.
3. Frenzied anger.
4. The higher forms of sympathy.

(See the Instinct of Laughter.)

III. THE MATING INSTINCT.—The sexual instinct, or the instinct of reproduction, is characterised by its great strength, and by the intense emotional excitement which accompanies it.

The element of appetite is well marked in this instinct, as shown by its periodicity and the seasonal variations of the appetite.

The keys to the instinct are the sex characters, and its goal is the act of union. Its natural object is an individual of the other sex.

The male of the species makes use of the special sex characters in subduing the female. Here the self-assertive instinct and the mating instinct are not clearly distinguishable,, and the Freudian theory tends to confuse the sexual instinct with the assertive and submissive instincts which normally complicate the operation of the sexual instinct. Again, the sexual instinct is intimately connected with the parental instinct, and the tender emotion of the parental instinct is usually aroused during the working of the sexual instinct.

The sexual instinct matures relatively late. Freud states its presence can be detected from earliest infancy. McDougall gives the eighth or ninth year as the time of its first expression, but individual differences are very marked.

The sex instinct operates in two phases:

1. Approach of the male to the female.
2. The discharge of the germ cells.

By these two phases the first two stages of fertilisation are achieved.

The fact that instinct has a cognitive as well as a conative and affective side is well illustrated by the mating instinct, for in this instinct there is an innate disposition perceptually to discriminate the secondary sex characteristics. Without this perceptual side sex instinct could not fulfil its function.

In both sexes the activity of the mating instinct is attended by a strong impulse and an intense emotional excitement. The whole activity is pleasurably toned in accordance with the law that instinctive activity progressing unhindered towards its goal is accompanied by a pleasurable affect. In man the sexual instinct is modified by

1. Will.
2. Ideals.
3. Personal sentiments.
4. Personal experience.

Sexual jealousy is not true jealousy. True jealousy presupposes an organised sentiment. Sexual jealousy is connected with the instinct of pugnacity, which is so liable to be aroused by any hindrance to the carrying out of the sexual impulse.

It will be seen, then, that the sex instinct involves

1. The parental instinct,
2. The instinct of self-display } seen chiefly in
3. The instinct of self-abasement } female coyness,
4. The instinct of pugnacity,

and is a good example of a chain instinct.

Sex love is a complex sentiment built up of the protective impulse and the tender emotion of the parental instinct joined to the emotional conative excitement—lust—of the sexual instinct.

The impulse of the sex instinct plays a large part in determining the form and activities of social intercourse. Recreations such as games and dances appeal in part to the sex instinct as well as to other instincts. The production and enjoyment of works of art is influenced by the sex instinct, and the appeal of sex plays is due to the stimulation of the sex instinct, and yields pleasure even when, as in this case, the end is known to be unattainable. Art appeals to the same instinct, but also evokes wonder, admiration, and respect, which prevent the domination of the sex instinct over the train of thought, and divert its energy into other channels. The energy so diverted serves to reinforce the activity of the pure appreciation of art.

The indirect utilisation of the sex instinct as a great store of energy available for other than sexual ends is the problem of regulating the sex instinct in enclosed communities. This process Freud calls sublimation.

Freud's Doctrine of Sex (*vide* Chapter XXV.).

1. Sexual life begins at or before birth.
2. Stage of auto-eroticism.
3. The child's sexuality is not directed to any definite object. Any sensory stimulation or bodily movement invokes it—*e.g.*, thumb-sucking. The mucous membranes of the lips, etc., and the external genital organs are erogenous zones. The normal infant is polymorphous perverse, and normal development only takes place when all the erogenous zones are subordinated to the primary one. If this does not follow, sexual perversion may ensue.
4. This objectless sexual excitement persists until the child is about seven, then

   $$\left.\begin{array}{l}\text{shame}\\ \text{loathing}\\ \text{disgust}\end{array}\right\}\ \text{aided by}\ \left\{\begin{array}{l}\text{training and}\\ \text{environment}\end{array}\right.$$

   keep it in check until
5. Puberty, where the sex instinct increases in strength. If the sex tendencies are repressed and the repressing forces are aided by moral training and ideals, they become sublimated.
6. The process of sublimation and repression is precarious, and may be interfered with. If this is the case, there may be manifestations of a normal or perverted type.

7. Normally, the sex impulse of the child is directed to the opposite sex by the tender ministrations of the mother. If these are overdone, the child's sex impulses become too strongly fixed on its first object—the mother. This impulse is repressed, and expresses itself indirectly and symbolically, and the growing child becomes jealous of the father, and a case of Œdipus complex may follow—repressed sexual attraction to the mother joined with repressed jealousy of the father.

There are many objections to this theory. The following are some of the most important (McDougall):

(1) It is based on a study of neurotic patients.
(2) It is partly true only of a minority.
(3) The sex instinct involves the instincts of self-display and self-abasement as well as the parental instinct. Freud confuses the sexual instinct with the sentiment of love.
(4) Freud regards sadism and masochism as part of normal sexuality. McDougall believes them to be the instincts of self-display and self-debasement operating with abnormal intensity under the special conditions of the sexual relationship.
(5) The stage of auto-eroticism is only seen in the minority of children, and cannot be regarded as a normal stage in the development of the sex instinct.
(6) Doctrine of erogenous zones is very obscure, and is not controlled by the facts of animal instinct.

(7) According to Freud, the child gets sexual pleasure from the administrations of its mother, and from suckling, and these direct the child's sexuality towards woman. But, then, how is the sex impulse of the woman directed towards man? The logical outcome of the theory would be homosexuality in women.

IV. THE PARENTAL INSTINCT.—The parental or protective instinct is one of the most powerful of the instincts, as it operates directly in the service of the species. McDougall calls it the only altruistic element in nature.

In mammals its primary expression is the suckling of the young, and in the higher mammals the parental instinct is characterised by a great lack of specificity, so much so that the mother of one species will feed the young of another. This lack of specificity is carried to a high level by man, who will respond to any young and helpless creature.

This extension of instinctive responses to objects other than the specific or natural object of the instinct involves a positive mental function—reasoning—since the organism is affected by one aspect or feature of a complex whole in the same way as by the whole itself. Extension of the parental instinct may take place in two ways:

1. Extension by similarity: anything similar to the natural object of the instinct—*e.g.*, a kitten.
2. Extension by contiguity: any object intimately connected with the chief object—*e.g.*, toys, clothes.

The key to the instinct is operated by the young. It is not the young themselves, but their expression of fear or pain that opens the door for the operation of the parental instinct. When the young grow up, the instinct sinks into abeyance. The impulse connected with the instinct is the protective impulse, and from it all truly altruistic conation originates. Its emotion is the tender emotion.

The tender emotion is closely allied to the angry emotion of the combative instinct. All moral indignation, and hence all justice and public law, have their root in the alliance of the tender emotion with anger.

In the absence of moral indignation of the majority of the members of the community, the laws can only be partially enforced by a system of despotism.

Upon the altruistic factor of the parental instinct the moral tradition is built up. All impulses of generosity, pity, and benevolence take their origin from this instinct. It is the foundation of

1. The family.
2. The stability of society.
3. Self-sacrifice.
4. Social functions.
5. Customs, laws, and religion.

Reason and intelligence do much to modify the working of the parental instinct. The homing of animals—the return of the mother bird to the nest—presupposes the operation of intelligence in the form of an acquired knowledge of the surrounding area. The carnivora have to return home with the kill, and are therefore superior in intelligence to the herbivora.

The egoistical impulses of man tend to suppress the operation of the parental instinct. Hence the need for the support of the instinct by strong social sanctions and the prevalence of these sanctions throughout the civilised world (McDougall).

Kidd says that the prime social function of any system of supernatural or religious sanctions is the regulation and support of the parental instinct against the effects of developing intelligence.

V. THE INSTINCT OF COMBAT.—The instinct of combat is not an expression of the parental instinct, since it is displayed when the young are not concerned and also by the male rather than the female.

Again, there is no tender emotion concerned. Anger, rage, or fury of high intensity takes its place.

The attitudes and methods of attack are innate, and are not learned, and cannot be regarded as reflexes, since they exhibit the characteristic marks of behaviour or purposive action (*q.v.*).

The combative instinct is aroused by

1. Obstruction,
2. Thwarting,

of any natural goal or instinctive train of behaviour. The stronger the impulse at work, the readier is the combative instinct evoked by any obstruction. Any interference with the food-seeking impulse, the mating instinct, or the instinct of escape or self-assertion, especially arouses it. Hence the combative instinct tends to intervene in the operation of some other instinct, and therefore presupposes other instincts.

The combative instinct has no specific object. The key that operates is any obstruction to any other instinctive striving. The goal is the removal of the obstruction.

This instinct operates in two phases—

1. The phase of threatening.
2. The phase of attack.

The first phase is accompanied by noise and bodily movements. The second phase is silent.

Darwin studied the bodily movements made during the operation of this instinct, and classified a list consisting of 'Darwin's expressive movements in pugnacity,' of which

1. Erection of the hairs,
2. Lashing of the tail,
3. Contraction of the forehead,
4. Baring of the teeth, and
5. Roaring

are of some importance.

The instinct of pugnacity plays an important part in the evolution of social life. Its expression has changed with civilisation. Collective combat is now the rule, there is a replacing of individual pugnacity by collective pugnacity, and individual pugnacity is controlled by education and self-control. A diversion of the energy of the instinct towards ends dictated by other instincts is the goal to be aimed at by civilised communities.

Collective pugnacity should be controlled by custom and international law.

VI. THE INSTINCT OF CURIOSITY.—The instinct of curiosity operates in two stages—

1. The stage of approach.
2. The stage of closer examination.

The object that excites curiosity must have some likeness to some object that usually calls into play some other instinct. It must be of sufficient degree of novelty to excite that other instinct or to fail to excite it in its full strength.

The goal of the instinct of curiosity is therefore fuller apprehension or clearer perception—full and clear enough to determine some other instinctive reaction. Its emotion is wonder.

Hence the instinct of curiosity has

1. No specific object.
2. Is not aroused to activity by objects of any one type only, but by any object or situation which involves imperfect apprehension or perception insufficiently clear to invoke any other instinct.

It is, then, the opposite of pugnacity, which supervenes on some other instinct. The instinct of curiosity is a prelude to some other form of instinctive behaviour.

Curiosity is suspended judgment, which is the basis of

1. Enquiry.
2. Wisdom.
3. Explicit judgment.
4. Reflection.

It is the root of

1. Science.
2. Speculation.
3. Religion.
4. Intellectual effort.

It is the innate curiosity of the Western mind that distinguishes it from the mentality of the East.

Curiosity may alternate with fear, and the resultant mental condition is curious and fearful.

There is a difference between the objects or situations that excite curiosity or fear. It is a difference of degree, fear being excited by a large element of the strange or unfamiliar, curiosity by a small element.

VII. THE FOOD AND DRINK SEEKING INSTINCT.—The food-seeking instinct is exhibited in various forms, and is variously specialised. Its emotion is gusto.

The impulse to wander in search of food differentiates animals from plants. It is the first of all instincts, because

1. It is the first tendency to be differentiated from the primal purposive energy or libido.
2. Its impulse overrides every other tendency; even fear.

The food-seeking instinct is highly specialised in insects who exist on one special food. It is less specialised amongst mammals, hence mammals show more adaptability.

Smell and odour are its guides amongst the carnivora where the so-called hunting instinct is one of the forms taken by the food-seeking instinct.

VIII. THE INSTINCT OF REPULSION.—The instincts of fear and repulsion account for all aversions except those acquired under the influence of pain.

The goal of the instinct of aversion is the avoidance or rejection of noxious things. Its emotion is disgust. Its operation is accompanied by an impulse of aversion—'a turning away'—appetite is 'a striving towards.' Its impulse differs from fear in that fear prompts to bodily retreat. Repulsion prompts to removal or rejection.

The value of the instinct of repulsion lies in the fact that it permits animals to experiment with safety upon various kinds of foods, therefore learning to differentiate between the harmless and the noxious.

Repulsion is also seen in avoidance of skin contact with unpleasant objects—*e.g.*, snakes.

McDougall points out that the instinct of repulsion well illustrates the intellectualisation of the instincts and primary emotions through extension of the range of their objects by

1. Association ('It makes me sick to think of it').
2. Resemblance ('He is like a snake').
3. Analogy ('He is rotten to the core').

IX. The Acquisitive Instinct.—The acquisitive instinct may be divided into

1. The hoarding impulse—*e.g.*, miser.
2. The garnering impulse—*e.g.*, gambler.

It is pathologically exaggerated in kleptomania and in the collecting mania of the insane.

This instinct is found in mammals who hoard food—*e.g.*, the dog's buried bone—and should not be considered as part of the hunting instinct, since it is also found in animals that do not hoard food.

In man the acquisitive instinct results in the accumulation of capital. Throughout the history of civilisation the operation of the acquisitive instinct may be seen in the accumulation of herds of cattle, the storing of grain, the holding of large tracts of land, and the hoarding of money.

X. The Constructive Instinct.—In man this instinct is at a low level, but in birds and insects it is of importance, since it co-operates with intelligence.

Evidence of its existence in man is shown in the constructive play of children, and in the building of large monuments, such as the Pyramids, which are the results of mutual co-operation.

XI. The Instinct of Appeal.—This instinct is evoked when the combative instinct fails to attain its goal. The key to the instinct is usually a cry—the cry of distress as in the parental instinct. The goal of the instinct is to obtain aid from others, especially the parent.

XII. The Instinct of Self-Assertion.—The instinct of self-assertion is of great strength in man, and, owing to the conditions of civilised life, very often suffers repression.

It is a social instinct, and only operates in the presence of spectators whom the individual considers inferior. Its emotion is pride or elation.

SYNOPSIS OF

INSTINCT.	EMOTION.	GOAL.	KEY.	IMPULSE.
Gregarious. Social. Herd.	Nostalgia. Feeling of loneliness — of isolation.	Near presence of other members of species. Function is to keep members of group together.	Members of same species.	To approach others, especially groups of others of same species.
Self - assertion. Self-display	Elation. Masterfulness. Pride. Positive self-feeling.	Impress others.	Presence of spectators.	
Submission. Self-abasement.	Feeling of subjection. Inferiority. Humility. Negative self-feeling.			Expressed physically by 1. Shrinking behaviour. 2. Diminution of muscle tone. 3. Slow restricted movements. 4. Hanging head.
Pairing. Mating. Reproduction. Sexual.	Lust.	Act of union.	1. Individual of other sex. 2. Sex characters.	1. Approach of male to female. 2. Discharge of semen.
Acquisition. Hoarding.	Feeling of ownership—of possession.	To obtain possession.		1. Hoarding. 2. Garnering.
Construction.	Feeling of creativeness.	The made article.		To make.
Appeal.	Distress. Feeling of helplessness.	Obtain aid and comfort, especially from parent.	Cry of distress.	
Laughter (minor instinct).	Amusement. Jollity. Relaxation.	1. Breaks up train of thought. 2. Rise of BP. 3. Stimulates respiration and circulation. No goal sought beyond itself.	1. Some maladjustment. 2. Something inappropriate and mildly distressing. Expressions of laughter are the keys which unlock laughter.	

THE INSTINCTS.

SPECIAL POINTS.	EXTENSIONS.	ADDITIONS.
Advantages: 1. Collective attack and defence. 2. Mutual incoming of danger. 3. Sharing in traditional knowledge. Usually called into play in conjunction with some other instinct, fear, anger, curiosity.	Moulds: 1. Forms of society. 2. Forms of our recreations.	Strongly confirmed by habit. Primitive passive sympathy is necessary. We must be surrounded by others sharing or feeling our emotion.
Very liable to be repressed. Exaggerated in G.P.I. Sadism.	Plays an important part in volitional control of conduct and in religion.	
Exaggeration gives delusions of unworthiness. Masochism.		Shame and bashfulness complicated by 1. Parental 2. Self-display 3. Self-abasement } -instincts.
Element of appetite is strong. Special sex characters are made use of by male to subdue female. Matures late. Highly pleasurable in operation. Example of a chain instinct.	Games. Dances. Works of art.	Modified by 1. Will. 2. Personal sentiments. 3. Ideals.
Exaggerated in kleptomania and collecting mania.	Results in capital.	
Low level in man and mammals except beavers. High in birds and insects.	Co-operation in works of construction mark this instinct in man.	Intelligence co-operates.
Evoked when combative instinct fails to attain its goal.		
Man is only animal that laughs. Laughter is the antidote to sympathy. Primitive sympathetic tendencies are counteracted by laughter.		

SYNOPSIS OF

INSTINCT.	EMOTION.	GOAL.	KEY.	IMPULSE.
Parental. Protective.	Tender emotion. Love tenderness. Tender feeling.	Child. Extension of application by 1. Similarity. 2. Contiguity.	Key operated by the young (cry). When the young grow up instinct becomes quiescent.	Protective.
Combat. Aggression. Pugnacity.	Anger. Rage. Fury.	Get rid of obstruction.	(1) Thwarting, (2) obstruction, of any instinctive train of behaviour, especially self-assertion, sex and flight. Any thwarting, therefore no specific key, and for this reason peculiar amongst the instincts.	Operates in two phases: 1. Threatening. 2. Attack. Impulse is of great strength.
Curiosity.	Curiosity. Feeling of mystery. Wonder.	Fuller apprehension or clearer perception — definite enough to determine some other instinctive reaction.	Imperfect apprehension or perception of objects insufficiently clear to evoke any other instinct. But object must have some degree of resemblance to objects that normally evoke some other instinct.	Determines fuller perception and leads to appropriate action. Two phases: 1. Approach. 2. Closer. examination.
Food seeking.	Gusto, appetite, or craving.		Food and drink.	To wander in search of food.
Repulsion.	Disgust. Nausea. Loathing. Repugnance.	1. Avoidance of noxious things or their rejection from mouth. 2. Avoidance of contact with skin of slimy things.		Aversion.
Escape. Self - preservation.	Fear. Terror. Fright. Alarm.	Escape.	Cry of fear, in gregarious animal.	Two phases: 1. Running shelter. 2. Lying hid.

THE INSTINCTS—*Continued.*

SPECIAL POINTS.	EXTENSIONS.	ADDITIONS.
Lack of specificity in mammals. Most powerful of the instincts. Only altruistic element in nature. Root of generosity, love, and pity. Foundation of 1. Family. 2. Stability of society. 3. Social laws.	Mother of: 1. Intellect. 2. Morality.	Intelligence. The tender emotion is allied to anger—the germ of moral indignation, hence 1. Justice. 2. Public law. 3. Beneficence. 4. Punishment.
This instinct presupposes others. Not so universal as fear. Lacking in female. Darwin's expressive movements of pugnacity.	Source of energy towards ends set up by other instincts.	
Curiosity is a prelude to other instincts, and in this respect is the opposite of pugnacity. Evoked through the distance senses, ear, eye, nose. Difference between curiosity and fear is one of degree.	Discrimination. Reflective judgment. Attitude of curiosity is suspended judgment, which is the basis of wisdom, questioning, science, religion, explicit judgment, speculation.	May alternate with fear.
Highly specialised in insects. One special food. Hunting instinct in carnivora. The first of all instincts.		
Value lies in helping to learn to differentiate between harmless and noxious foods.	By 1. Association. 2. Resemblances. 3. Analogy.	In its extension it is aided by intelligence.
One of the most powerful instincts. Great inhibitor of action.	Agent of social displeasure through which the egoistic impulses are controlled. In religion, curiosity and fear are allied.	

In gregarious animals it is seen best during the mating season, and some animals, notably the peacock. have special organs of display.

The instinct of self-assertion plays an important part in the volitional control of conduct. It is exaggerated in general paralysis of the insane. When this instinct operates with abnormal intensity during the working of the mating instinct, a condition of sadism results, and, as Krafft-Ebing points out, the sexual act gives an opportunity for showing a superiority springing from the instinct of self-assertion.

XIII. THE INSTINCT OF SUBMISSION.—The working of the instinct of submission is accompanied by a feeling of humility. Its impulse is expressed physically by

1. Shrinking behaviour,
2. Slow restricted movements,
3. Diminution of muscle tone,
4. Hanging of head,

and should not be confused with the expression of fear.

Shame and bashfulness arise from this instinct, but, as McDougall points out, fully developed shame implies self-consciousness, which is a result of intellectual development.

Masochism is the instinct of submission operating with great intensity during the working of the sexual instinct, and is the opposite of sadism.

In cases of insanity, exaggeration of this instinct may result in delusions of unworthiness.

XIV. LAUGHTER.--Laughter and sleep (*q.v.*) are regarded by McDougall as minor instincts. If laughter is an instinct, it is the only one particular to man.

There are four main theories of laughter:

1. Spencer's theory, which states that laughter is produced by a surplus of nervous energy.

2. Hobbes' theory, that laughter is an expression of pleasure.
3. Bergson's theory of laughter is that laughter serves the ends of social discipline.
4. McDougall's theory, that laughter is a minor instinct whose key is the expression of laughter.

McDougall says that man enjoys laughter because of

1. Physiological reasons—it stimulates respiration and raises the blood pressure.
2. Psychological reasons—it breaks up every train of thought and every sustained activity, bodily or mental.

There are two features essential to the ludicrous:

1. Some maladjustment.
2. The ludicrous situation or action is one which, if we ourselves suffered it or performed it, would be mildly distressing to us.

Owing to the primitive sympathetic tendency (*q.v.*) on viewing these inappropriate actions or situations, we would tend to share in the distress engendered. We would suffer sympathetic pain and depression.

We are saved from this by laughter which breaks up our train of thought and prevents us dwelling upon the distressing situation. Sympathetic pain is therefore counteracted by laughter. Laughter is the antidote to sympathy.

If laughter is an instinct, it differs from all other instincts as seeking no goal beyond itself.

CHAPTER VIII

HABIT

HABIT is the repetition of any intelligently adapted and acquired reaction under similar conditions.

James states that an acquired habit from the physiological point of view is a new pathway of discharge formed in the brain, by which certain incoming currents ever after tend to discharge. In acquiring a habit a new motor mechanism is built up in the central nervous system similar to the motor mechanism with which we are innately endowed.

In habitual action each muscular contraction is instigated by the sensation occasioned by the muscular contraction just ended. A voluntary act, on the other hand, is guided by idea, perception, and volition. Habitual action requires only sensation as its guide, and the higher centres are liberated for other uses.

The Formation of Habit.

Elementary movements are combined in new ways by practice, and a new combination is achieved which ultimately becomes secondarily automatic. In the operation of a habit no effort is needed, only the will to produce it. Habits formed in this way are usually skilled movements. Retentiveness and conation are required—*e.g.*, learning to walk.

Stout points out that the formation of habit is an example of facilitation. Dispositions left behind by previous conations facilitate subsequent conations in the attainment of their ends. When this process of facilitation reaches a point when conscious striving is no longer necessary, the action becomes habitual.

James quotes Bain on the formation of a new habit. He states that the following two points are essential:

1. Strong initiative.
2. Continuity of training.

No exceptions should be allowed until the habit is firmly rooted and every opportunity of acting should be taken.

Classification of Habits (Stout).

1. Habits of body—bodily adaptations through use, due to climate, diet, or exercise.
2. Habits of mind are habits of the central nervous system—*e.g.*, punctuality.
3. Habits of thought—*e.g.*, pun making.
4. Habits of will—answering letters on the day received.

The above classification is a good example of the pedantic viewpoint of some of the recognised authorities on academic psychology.

Practical Effects of Habit.

1. Simplifies our movements.
2. Makes them accurate.
3. Diminishes fatigue.
4. Diminishes conscious attention.

Habit is

1. Prompt,
2. Automatic,
3. Fixed,
4. Definite,
5. Easy,
6. Accurate;
7. No attention is required.

The ethical importance of habit is well stated by James, who says that habit is the flywheel of society that keeps us within the bounds of ordinance.

Habit and Instinct.

The formation of mental habits in animals is a redirection of the instinctive impulses. The animal responds with an instinctive impulse to some object to which he was previously indifferent.

James considered instincts to be transitory, and merely give rise to habits which supplant instincts in the fully developed organism.

The behaviourists (*vide* Chapter XXVIII.) explain every manifestation of the mind in terms of the conditioned reflex, which is a habit. According to Woodworth, habits have impulsive powers, but McDougall does not agree with this view. He holds that habits are only instruments which serve our purpose, but do not determine them. Habit has

1. No drive,
2. No motive,
3. No appetite, and
4. Is not a source of purposive activity.

Tics are uncontrollable habits, and are often expressions of a repressed or dissociated system. When the repression is relieved, the tic is abolished.

CHAPTER IX

PURPOSIVE ACTION

THE view that all animal and human behaviour is purposive, and that purposive action is fundamentally different from mechanical process, is the hormic theory (ὁρμη=an urge to action). Jung's libido, Bergson's *élan vital,* and Schopenhauer's will to live are other expressions of this theory. Conative processes are a subclass which are conscious.

Purpose implies foresight, and purposive action is governed or directed by prevision of its effects.

Purposiveness is the essence of mental activity, and is an expression and manifestation of mind.

The criteria of purpose are the marks of behaviour. Behaviour is the action of some living organism, and is therefore peculiar to living things.

In the study of behaviour the organism has to be studied as a whole in relation to its environment.

There are seven MARKS OF BEHAVIOUR, and when these marks are exhibited, purposive action may be deducted (McDougall).

1. *Persistence* of activity independent of the continuance of the impressions which may have initiated it.
2. *Purposive.*—A coming to an end of the animal's movements as soon as they have brought about a particular kind of change.
3. *Preparatory.*—Preparing for the new situation towards the production of which the action contributes.

4. *Retentivity.*—There is some degree of improvement in the effectiveness of behaviour when it is repeated by the animal under similar circumstances. A profiting by experience.
5. *Spontaneous.*—There is a certain spontaneity of movement.
6. *Total.*—The organism acts as a whole.
7. *Varied.*—Variation of direction of persistent movements. Movements cannot be predicted.

Teleological action is directed towards a goal. The action may be purposive or the goal may be willed by the creator.

The mechanists regard purposive action as being merely reflex or serviceable, and not accompanied by experience. Foresight or desire of the end is not necessary, since the nervous system would bring about the action independent of these aids. Behavourism, sensationism, associationism, and presentationism all deny the reality of purposive action.

But it should be noted that there are two classes of movement—

1. Mechanical,
2. Purposive;

and two classes of things—

1. Living,
2. Non-living.

Lifeless objects do not present the marks of behaviour which are criteria of purpose.

Purposive and Reflex Movements Contrasted.

Reflex action was first described by Descartes, and is an immediate response to a stimulus. Reflexes are primitive modes of protection from injury, and are to this extent purposive in character.

The conditioned reflex is a reflex acquired by experience, and some of the behaviourist school hold that the conduct of man is merely the sum of his conditional reflexes.

Reflexes do NOT exhibit the marks of behaviour. The reflex lacks

1. *Persistence.*—The reflex continues only as long as the stimulus. In the chain reflex each movement acts as a stimulus for the next.
2. *Purpose.*—The reflex does not seek a goal.
3. *Preparation.*—No preparation is necessary for the reflex.
4. *Retentivity.*—Reflexes are not improved by repetition. The mechanists will point to the conditioned reflex as seen in the classic experiment of Pavlov's dog as being against this statement.
5. *Spontaneity.*—The legs of the brainless dog only execute the walking reflex when stimulated in a particular way. McDougall points out that the normal dog gets up and walks without any assignable stimulus.
6. *Totality.*—The reflex is always partial.
7. *Variation.*—The reflex is fixed.

The reflex is peculiar to those animals that have a well-developed central nervous system. Purposive action is found in animals with a very rudimentary nervous system.

The mechanists explain this by means of tropism (Loeb)—a doctrine that seeks to explain the movements of organisms low in the scale by means of their reaction to light—negative or positive phototrophic. This theory, however, presupposes two of the marks of behaviour—*i.e.*, spontaneity and persistence.

A SYNOPSIS OF VARIOUS

SIMPLE REACTION.	REFLEX ACTION.	AUTOMATIC ACTION.
Simplest process accompanied by consciousness. A response to a stimulus: A. Simple. B. Choice. C. Associative. 1. Not so quick as reflex. 2. Preparation necessary. 3. Response arbitrary and temporary. 4. Voluntary. 5. Conscious.	An immediate motor response to a stimulus. A movement initiated by a sense stimulus and resulting from a sequence of merely physical processes in some nervous arc (McDougall): A. Simple. B. Conditioned. C. Complex — finally reaching the level of instinct. No sharp dividing line can be indicated. 1. Primitive method of protection, therefore purposive—useful. 2. Generally quicker than simple reaction. Reflex. Lid ·05 Simple. Light ·18. K.J. ·03 Sound ·15. 3. Regulative—adjusts organism to conditions affecting it. 4. No preparation necessary. 5. Response inherent and permanent 6. Involuntary. 7. Often unconscious. 8. More deeply seated in organism than simple reaction. 9. More essential to its welfare than simple reaction. 10. Native or inherent. 11. Not acquired. May be interfered with by 1. Rival impulses due to another stimulus acting on the same group of muscles. 2. Fatigue and similar conditions. 3. Impulses coming from cortex.	Is at one time voluntary and from constant repetition by training and education has become organised, and therefore scarcely affects consciousness — *e.g.*, walking, piano playing, dictation. Never so quick as reflex. About as quick as simple reaction. Useful but not so fundamentally necessary as reflexes. 1. Involuntary. 2. Mechanical. 3. Automatic — without being imagined before and without conscious impulse. 4. Attention and impulse have deserted the fully mastered details and attached themselves to larger units — *e.g.*, signing one's name.

FORMS OF ACTION.

HABIT.	INSTINCTIVE ACTION.	IMPULSIVE ACTION.
Habit is voluntary action which from repetition and facilitation is almost automatic — *e.g.*, early rising, punctuality. Habits are conscious actions which become stereotyped. 1. No attention paid. 2. Prompt. 3. Automatic. 4. Fixed. 5. Definite. 6. Easy. 7. Accurate.	An inner adjustment or tendency to reaction that cannot be immediately executed. Tendency persists and gives rise to preparatory reactions. Purposive action in pursuit of ends without foresight or education. 1. Not so simple as reflex—more elaborate. Difference of degree and not of kind. No sharp line can be drawn between reflexes and instincts—a graded series from the lid reflex to the nesting instinct. Reflex is a prompt reaction. Instinct is characterised by the persistent tendency set up by a given stimulus and directed towards a result that cannot be instantly accomplished. 2. End to be attained is more remote than reflex. 3. Methods of attaining ends are capable of variations and are modified by experience. 4. There is a conscious component. 5. Universally present. 6. Non-rational. 7. Accompanied by emotion. 8. Reflex action is a response to a stimulus. Instinctive action in many cases is a response to an object.	An action short of full deliberation and control. Occurs in cases where inhibition is markedly wanting—*e.g.*, children and obsessional states. Impulsive action is contrasted with action that results from reflection or deliberation. Animals are creatures of impulse. Impulse is any conative tendency so far as it operates by its own isolated intensity apart from its relation to a central system of motives (Stout).

CHAPTER X

SENSATION

SENSATIONS cannot be psychologically explained. They are data. Sensation as a conscious experience is a pure abstraction, since man experiences a total mass of sensations and not a mere sensation.

Sensation is the notice taken by the organism of modifications produced by the stimulus. Sensations are psychical states, since they have actual existence only while they are actually experienced. Sensation is the stuff of which consciousness is made.

Sensations are not subjective states like attending and willing, but essentially objects. They are psychical objects which normally come into being in consequence of the stimulation of afferent nerves. There are two conditions necessary for the occurrence of a sensation:

A. A sense organ either external or internal.
B. A stimulus.

Facts concerning Sensations (Stout).

1. They are immediate experiences.
2. They are objective experiences or presentations.
3. When the sensations cease to be sensed, they cease to exist.
4. Each individual only experiences his own.
5. They are not complete or independent objects.
6. Something else which is not immediately experienced is necessary to be apprehended in connection with them.

7. They always put the thinking mind in communication with external objects. They mean something beyond themselves.
8. The *meaning* thus conveyed by sensations is acquired by retentiveness and association.
9. We can never have absolutely pure sensation—devoid of meaning either original or acquired.
10. Sensations always have derivative meaning, retentiveness and association operating from the very beginning.
11. No actual sensation with which we can definitely deal is absolutely dissociated from past experience.

Sensation and Stimulus.

1. An adequate stimulus is the stimulus for which each sense organ is peculiarly adapted. It is only effective when it acts on the end organ.
2. An inadequate stimulus is another stimulus than that which is appropriate to the sense. A blow on the eye results in seeing 'stars.' Here the sense experience depends not on the nature of the stimulus, but on the nature of the sense organ.
3. Müller's law of specific nervous energy states that
    - A. A given stimulus on different end organs results in different sensation.
    - B. Different stimulation on the same end organ results in the same sensation.

Intrinsic Characteristics of Sensation (Stout).

1. Quality
2. Intensity
3. Protensity or duration } These are essential to all sensation.
4. Modality. Heat and noise are modally different.

5. Extensity or spreadoutness. Visual and cutaneous senses.
6. Local signature. Visual and cutaneous senses. Local sign localises the stimulus. On the basis of local sign and extensity the perception of extension form and spatial relations are built.
7. Affective tone. This character gives us our experience of pleasure or displeasure. It is experienced in the thalamus.

A. *Quality.*—This character depends on the rate of vibrations of the stimulus. Quality, intensity and protensity are apprehended implicitly. Explicit apprehension is only in comparison of sensations.

B. *Extensity* or diffusion is absent in the senses of taste and smell, but is marked in the cutaneous and visual senses. Note that extension is an attribute of bodies, and is not the same as extensity. In the character of extensity there is a local diversity of the areas of skin and retina independent of any difference in the nature of the sensations. It therefore involves a unique diversity between simultaneous presentations which is independent of their similarity in quality and intensity.

C. *Local sign* is an immediately experienced place difference. This diversity of simultaneous sensations does not depend on any assignable difference in quality or intensity, but is conditioned only by the diverse connections of locally distinct parts of the sensory surface with the central nervous system.

Local sign is found only in visual, cutaneous, and tactile sensibility. Organic sensations are diffuse, but have no local sign. Compass points applied to the skin give perception of apartness (*vide* Cutaneous Sensations).

The implicit apprehension of local sign differences is more primitive than the explicit.

D. *The affective tone* of special sensations varies with

1. The intensity ⎫
2. The duration ⎬ of the sensation.
3. The quality ⎭

1. A sensation must have a certain minimum of intensity to have an appreciable affective tone. Rise in intensity is accompanied by rise in the intensity of affective tone. If the sensation is unpleasant, the unpleasantness continues to increase. If pleasant, it tends to increase to a maximum, and then becomes unpleasant.
2. The dependence of feeling tone on duration varies according as the sensation is
    (1) Continuously maintained.
    (2) Repeated intermittently.

    If it is continuously maintained, pleasantness becomes unpleasantness. Unpleasantness always remains unpleasantness. If the sensation is intermittent and too frequent, pleasantness becomes unpleasantness, but unpleasantness may even become pleasant —as in acquired tastes.
3. Quality is an important factor in feeling tone. That one quality may be pleasant and another unpleasant is an accepted fact, but it is difficult to give reasons for it. Rhythm in music is pleasant; anything that upsets rhythm is unpleasant.

Surplus Excitation (Stout).

The affective tone arising in connection with the occurrence of a sensation is not simply due to quality or intensity or duration. There is a special excitement produced by the sensation, and added to that there is a diffuse excitement of the nervous system produced by the sensation. This diffuse excitement is surplus excitation (Ladd). A bitter taste may not only be tasted, but may also give rise to a cold shiver. Not only are the results of surplus excitation seen in connection with the special senses, but it may also modify the affective tone of organic sensation (*q.v.*).

Surplus excitation also accounts for the different kinds of pleasant or unpleasant feeling.

The organic effects of surplus excitation are seen experimentally in alterations in the volume of a limb, and in modifications of the movements of respiration during pleasant and unpleasant experiences.

Hence there are three factors which contribute to determine affective tone in sensation:

1. The sensation itself—
    - A. Quality,
    - B. Intensity,
    - C. Duration.
2. The diffuse excitement of the nervous system which it may produce.
3. The effect of this diffuse excitement on the organism by the consequent alteration of pleasure or pain connected with organic sensation arising from the altered state of the internal organs.

The Functions of Sensation.

1. Sensation compels attention to incidents immediately affecting the welfare of the organism.
2. Sensation serves to regulate and guide the detailed development of complex actions. The more developed perceptual consciousness is, the more delicately differentiated is sense experience.

Classification of Sensations.

The senses may be divided into the higher and the lower.

Low in the scale are

1. Organic sensation.
2. Temperature sensation.
3. Smell.
4. Taste.

These arrive earlier in mental development than the *high* in the scale:

1. Touch proper.
2. Sight.
3. Sound.

These are more delicately discriminated, and are more capable of being combined in groups and series while preserving their distinctive differences. The kind of combinations into which the various classes of sense experience enter are

1. Fusion or blending—*e.g.*, coffee.
2. Colligation, grouping or arrangement—*e.g.*, colours.

Fusion is found in the lower senses. In fusion there is no definite order, and no distinct presentation of any two sense qualities blended: In colligation, which is characteristic of the higher senses, there is distinct presentation.

The Sensation Reflex.

In the sensation reflex the stimulus which evokes or tends to evoke a reflex also gives rise to a sensation. The sensation reflex is a method by which attention is brought into play to control or supplement the reflex process with a view to the preservation of the organism.

In order to arouse attention the sensation must be emphatic and strongly affective, so that it cannot be ignored.

The pupil reflex occurs normally without sensation, but should the eye contain a foreign body, not only is there reflex dilation or contraction of the pupil, but there is also a sensation of strong affective tone.

The importance of the sensation connected with the sensation reflex depends on its power to arouse attention through its intensity and affective tone.

Change Sensation.—Stout describes a sensation of the process of transition which is found in vision and touch. Two points on a field of vision may be indefinite, but if they are moved, there is a well-marked sensation experience.

ORGANIC SENSATION.

Organic sensations are the most primitive, and correspond with the general vital action of stimuli as distinct from their action on specially differentiated sensory apparatus.

The source of organic sensation lies in the vegetative life of the organism, and the stimulus lies in the various conditions of

1. The blood.
2. Digestion and assimilation.
3. The secretions.
4. The supply of oxygen.
5. The processes of metabolism.

Examples of organic sensations are

1. Hunger.
2. Thirst.
3. Muscular cramp.
4. Fatigue.

Distinctions between Organic and Special Senses.

1. Organic sensations make a difference to the efficiency of the body in the way it carries out its vital functions. The special sensations do not.
2. Organic sensations lack distinctness. They are diffuse. They have only crude extensity. The special sensations are distinct, more restricted and localised, and the characteristic of extensity is well marked in the visual and cutaneous senses.

Organic sensations are of the utmost importance in conditions of affective consciousness, and therefore of conative consciousness. Our emotional attitude to life is to a large extent conditioned by our organic sensations. Our vague total awareness of bodily well-being and bodily discomfort depends on the sensations arising from the internal organs which are largely only subconscious and apprehended implicitly.

The Cœnæsthesis, or states of common sensibility, are those organic sensations which find their source in the bodily organs.

Changes in the cœnæsthesis may result in a change of attitude to life. This is seen in the spes phthisica of tuberculosis, and more temporarily in the alcoholic state and the 'longings' of pregnancy.

Such changes in the bodily sensations as are found in the climacteric and pre-senile conditions may result in delusional states, since the changes in the organism become symbolised in the psychoses, and ideas of unworthiness and negation arise. In general paralysis of the insane there are profound changes in the organic sensations which are reflected in the exalted and grandiose behaviour of the patient.

It should be noted that organic sensations can be directly produced and modified by impulses proceeding from the central nervous system to the bodily organs, and resulting in changes in the action of

1. The heart.
2. The lungs.
3. The circulation.
4. The secretions.

The stimulus in organic sensation tends to overflow into other organs, and so add further constituents to the sensations.

The feeling tone of common sensibility determines, to a large extent, the feeling tone of more special experiences in the way of sensations, perceptions, and ideas (*vide* Temperament).

The Embodied Self.—Stout points out that in the consciousness of self at the perceptual level organic sensations help to form a continuous unity with the total complex of sense experience through which the body is perceived (*vide* The Self).

CUTANEOUS SENSATION.

The exploration of the skin by the hair æsthesiometer and by hot and cold stimuli shows

1. Heat spots,
2. Cold spots,
3. Touch spots,
4. Pain spots,

corresponding to the cutaneous sensations of touch, heat, cold, and pain. In addition to these, Myers has detected by means of cotton-wool diffuse light touch in the absence of touch spots.

Tactile discrimination, or the localising sense, is elucidated by Weber's compasses. Much work has been done on tactile discrimination, and data have been collected from the results given by

1. Weber's compasses.
2. Head's experiments.
3. Pathological cases.

There are two methods of testing localisation experimentally:

1. Indicating on a photograph the part of the skin touched.
2. Indicating the position and direction of tactual sensations relative to each other. The perception of apartness is here involved, and two simultaneous sensations are detected as two.

Head's Experiment (Halliburton).

The radial and external cutaneous nerves were cut at the elbow joint and the cut ends sutured. The results were—

1. All sensation depending on the cutaneous end organs was lost.

2. Deep pressure gave reactions of touch and pain, since the underlying parts are supplied by nerve fibres distributed with the muscle joint and tendon nerves.
3. The first actual cutaneous sensations to return were termed by Head *protopathic*, and consisted of sensibility to pain, large differences of temperature, and inaccurate localisation.
4. These were followed by the *epicritic* group: accurate localisation, small differences of temperature, and generally fine distinctions of cutaneous sensation.

The main sensations coming from the periphery of the body may, therefore, be divided into

1. Deep.
2. Cutaneous $\left\{\begin{array}{l}\text{A. Protopathic.}\\ \text{B. Epicritic.}\end{array}\right.$

Intrinsic Characters of Protopathic:

1. Diffuse. Partaking of nature of organic sensation.
2. Relatively intense.
3. Only crude extensity present.
4. Appreciation of pain strongly affective.
5. Extremes of heat and cold only.
6. General localisation poor.
7. *Relative* localisation (apartness) *absent.*

Epicritic—discriminative:

1. Intermediate degrees of heat and cold.
2. Light touch.
3. Appreciation of size.
4. *Relative* localisation (apartness) *present.*

It will be seen, then, that for relative localisation and the appreciation of position, direction, and shape, epicritic sensation is necessary. It is, however, very doubtful if epicritic sensation is sufficient itself. The co-operation of other factors is almost certainly required.

Head found that in pathological conditions of the bulb and spinal cord there was loss of relative localisation constantly conjoined with loss of muscle joint and tendon sensation. In these cases the limb had normal epicritic sensation.

Hence the perception of apartness, shape, and size may be lost when there is no defect in cutaneous sensibility. The loss is due to central, not peripheral conditions.

It follows from this that *local sign*—the immediately experienced diversity of places within an extensive whole—probably depends on central rather than peripheral conditions, and that the nervous impulses on which local sign depends follow the same course as the impulses from muscle joints and tendons.

It should be noted that the patient suffering from a nervous lesion which abolishes local sign may still appreciate absolute as distinguished from relative localisation. This is owing to the fact that the sensibility of the skin is otherwise impaired, and there is a diversity in the local colouring of sensation.

Ward identified these local colourings as local signs proper, but they are only secondary or auxiliary local signs, and cannot fulfil the function of experiencing place lifference, which is centrally and not peripherally conditioned.

Local sign is not itself the sole factor in the perception of apartness, distance, direction, shape, and sign. Experiences involving active movements with their corresponding series of muscle joint and tendon sensations play an important part (Stout).

Functions of Skin Sensations :

1. They give information of the extension of the surface of our own bodies and of the

shape,
position,
direction,
distance,

of its parts. Skin sensations are here localised.

2. They give information of the

shape,
position,
direction,
distance,

of bodies external to our own. Skin sensations are here projected.

KINÆSTHETIC SENSATION.

Kinæsthetic or motor sensations find their adequate stimulus in the variable states of joints, tendons, and muscles.

The information covered by motor sensations is a meaning acquired by association with experiences of touch and sight. This association is in the nature of a complication, and the kinæsthetic sensations acquire the meanings primarily belonging to the associated experiences of touch and sight—*i.e.*, kinæsthetic sensations are aided by a revival of touch and sight sensations.

The function of motor sensations is to show the position and motion of the limbs and body when there is no actual bodily contact. The kinæsthetic sensations aid the visual and cutaneous sensations to give perception of the spatial relations of the body. The resistance to weight is also appreciated by the motor sensations, helped by the pressure sensations of deep sensibility.

Joint sensations are the most important owing to the structure—two rubbing surfaces. Tendon sensations give appreciation of pressure and strain.

Statæsthetic sensations (Stout) are sensations which are experienced when the limb is at rest. They give a sense of position.

The perception of the motion of joints is due in part to a transition experience aided by statæsthetic sensations.

WEBER'S LAW.

Weber's law states that the increase of stimulus necessary to produce an increase of the sensation bears a constant ratio to the total stimulus.

This constant ratio is the differential threshold, and has been found experimentally to be for

	Ratio.
1. Light	$\frac{1}{100}$
2. Weight	$\frac{1}{17}$
3. Pressure	$\frac{1}{3}$
4. Warmth	
5. Sound	

The differential or discernible threshold has to be passed before there is a discernible difference in sensation. It bears a constant ratio to the total stimulus.

The stimulus threshold is where the sensation is just indistinguishable, so that the least increase would make it distinguishable.

The absolute threshold, or liminal threshold value, or intensity, is where the stimulus is just sufficient to evoke sensation.

Fechner sought to explain and to extend the application of Weber's law to all sensations.

Fechner's law stated that the intensity of the sensation varies with the log. of the stimulus. In other words, the sensations increase in arithmetical progression while the stimulus increases in geometrical progression.

$$S = C \log. R,$$

where S is the sensation, C is a constant, and R is the stimulus numerically estimated.

There is no practical outcome of Fechner's law, and Weber's law holds good only for the perception of weight and light, and is then not absolute.

FATIGUE.

Fatigue is loss of efficiency due to prolonged exercise. It is more marked in the manual worker than in the brain worker.

Fatigue is a sensation or a complex of sensations. Muscular work results in a feeling of fatigue sensations. Mental work can be prolonged for a considerable time without fatigue supervening, but there is some element of muscular strain involved—a rigidity of the body or fatigue of the eye muscles added to indefinite sensations of weariness proceeding from other structures. Mental or general fatigue results.

Much experimental work has been accomplished on fatigue by means of the ergograph. It has been found that short periods of rest are advantageous, and produce more work, but the emotional attitude of the worker is a point of great importance. In all experiments the personal element must be taken into account (Myers).

The effect of alcohol upon efficiency has been investigated, and a wide range of individual variation has been found. In many cases alcohol was found to be injurious to the quality and quantity of the work performed. Caffeine, on the other hand, often gives an increased capacity for muscular and mental work, and its use does not tend to hide fatigue.

Adaptation is a condition much like fatigue. In adaptation the stimulus to the sense organs continues, but the resulting sensation ceases or diminishes. On entering a dimly lighted room after the eyes have been exposed to the glare of the sun, very little can be discerned for some time, but soon the eyes become adapted to the new conditions, and visual sensation functions normally.

All the senses except pain give adaptation.

CHAPTER XI

PERCEPTION

McDougall says that perception is primarily the cognition of a material object in space. Cognition, as has been explained, is a fundamental faculty of mind. Mind responds to a sense impression by an 'act of knowing' and by a striving—conation.

A perceptual process, according to Stout, is a train of mental activity which is prompted and guided by external impressions, and directly worked out in bodily movements. A perception cannot exist without a sensation, but the sensation is not identical with the perception. Perceiving an object is thinking of it by the aid of sensory qualities. It is a knowing of the presented facts.

A perceptual process involves

1. Attention.
2. Selection.
3. Memory for comparison.
4. Imagination.
5. Pursuit of ends.
6. Appreciation of success and failure.
7. Persistence.
8. Learning by experience.

It is therefore intelligent, and perceptual intelligence is entirely concerned with guidance and control of motor activity. (*Vide* Chapter XXVIII.)

On the perceptual level there is

1. No past or future.
2. No apprehension of universals.

3. No discrimination of alternative possibilities.
4. No ideal construction.
5. Only rudimentary comparison.
6. Absent objects cannot be dealt with.
7. Only rudimentary judgment.

Perception is

1. Intelligent.
2. It guides and controls motor activity.
3. It apprehends what actually exists.
4. It is guided by attention.
5. It involves learning by experience (due to primary retentiveness).

IMAGERY.

Imagination or imagery is thinking of remote objects. A remote object is any object not affecting the senses at the moment of thinking of it. The image, like the sensation, is an abstraction. An image is a presentation which is recognisably like an actual sense experience, but which is not an actual sense experience (Stout).

Differences between Image and Percept.

The primary memory image is that image which follows nearly immediately after perception.

The image

1. Lacks sensory vividness.
2. Is more fragmentary because there is no reinstatement of the consentience (*i.e.*, motor and organic sensations, etc.).
3. Is less distinct—because of obliviscence (Ward).
4. Lacks detail—because of reduplication (Ward) and because some omissions are necessary for practical purposes.

Types of Imagery:

1. Motor.
2. Verbal.
3. Visual.
4. Auditory.
5. Tactile.

The ideatic image is a special memory of an object seen, which some people experience after the object has been removed (Pears). Persons with concrete interests have a more vivid imagery.

An idea is a significant mental image. It consists of two components:

1. Image.
2. Meaning.

Stout says that the meaning which the image or idea conveys depends on its efficacy in stirring up a certain group of associated dispositions. Bergson says we act with the whole of the past. The sensationists believe that the images clustering round the sensations give meaning to them. The behaviourists think that meaning is wholly a bodily attitude, and consists of an innervation of certain muscles. James stated that the stream of consciousness was bathed in a mass of sensations or images, and these gave meaning to the sensation or images occupying the focus of consciousness (doctrine of the fringe of thought).

McDougall states that to mean an object is the very essence of thinking of it. Sensations and images are the psychic stimuli which evoke the meaning. Perception is a reaction of the mind on a clue supplied by the senses. *The mind supplies the meaning.* This is the psychic stimulus theory (*vide* Spatial Perception).

Difference between Perceptual Process and Ideational Process (Stout).

Perceptual processes are trains of mental activity prompted and guided by external impressions, and directly worked out in bodily movements.

Ideational processes are trains of mental activity which proceed independently of external stimulation, and are worked out in the head.

In perceptual process there are free ideas only in so far as they supplement these processes.

In ideational process free ideas succeed each other in a series independent of actual perception.

Conceptual process is a higher development of ideational processes.

PERCEPTUAL PROCESS.	TRAINS OF IDEAS.
1. Bound up in bodily behaviour.	1. Not bound up in bodily behaviour.
2. Fixed by actual sense impression.	2. Not fixed by actual sense impression.
3. Cannot deal with past future absent } objects.	3. Can deal with past future absent possible } objects, and therefore can plan in advance.
4. No explicit concepts—*i.e.*, no apprehension of the general or universal as distinguished from the particular.	4. Aware of general and abstract features.
5. Imitation limited to a tendency to similar behaviour.	5. Imitation because of a certain end.
6. No concept of the self as such. Animals are creatures of impulse. They have no personality—no unified system of tendencies.	6. Concept of self as a unified system of tendencies.

TEMPORAL PERCEPTION.

The nature of an experience is a succession of phases. Our capacity for temporal perception appears to be rooted in this fact.

Factors in Temporal Perception.

1. The mind is adapted to its environment—a changing world.
2. Progression from the present to the future is the essence of mental activity.
3. Attention is continually shifting. Things are perceived successively.
4. The success or failure of conation is constantly continuing with their affective accompaniment.
5. An important part is played by trains of free ideas.
6. From the above the experience of transience is obtained. Darkness passes into light.
7. There is a definite change sentience (Stout).
8. Muscular and internal bodily changes are constantly occurring—*e.g.*, fatigue and hunger.

The Present, Past, and Future.

The present is determined by the immediacy of immediate experience. The present is the moment of actually felt affection and conation, of actually sensed sensation, and of actually imagined images.

Whatever is not actual experience at the moment is either past or future.

Past and future are distinguished by the facts that

A. The future is uncertain.
   The past is certain.
B. The past is beyond control.
   The future may be partially determined by continual adjustment.

The present may be divided into

1. The actual present—a knife edge.
2. The specious present—a saddleback (James).

The specious present includes a little of the immediate past and future. On the perceptual level the specious present is longer when conation is obstructed, and shorter when conation is successful.

Objective time is clock time, and is an ideal construction, and moves at a constant rate. Subjective time is lapse of time experienced by the subject, and varies with the subject.

Experiments on Perception of Lapse of Time.

1. A time interval is presented. The subject has to repeat it as accurately as possible.
2. Two intervals are presented. The subject has to state which is the longer or the shorter, or if they are equal.

Results.

1. Long intervals are underestimated.
2. Short intervals are overestimated.
3. Filled intervals are longer than empty.

Attention is the deciding factor. Successive experiences are modified by the cumulative effect of retentiveness.

SPATIAL PERCEPTION.

Spatial discrimination is the most fundamental and primitive form of spatial experience.

Examples of spatial discrimination:

1. To feel two touches as on different portions of the skin.

2. To hear two sounds coming from two different directions.
3. To see two points of light as in different positions.

Theories of Spatial Perception.

1. Genetic. This theory was held by Locke, Mill, and Hume. It states that the capacity for spatial perception is acquired or built up in the course of life.
2. Nativistic. The capacity for spatial perception is innate, but it may develop only gradually under the influence of experience.
3. The psychic stimulus theory was held by Stumpf, Kant, and Lotze. This theory states that the conation of tri-dimensional space is innate (nativistic), and is a form of thought or intuition which is imposed upon the manifold data of sense (psychic stimuli)

McDougall holds that the acceptable theory must be of the nativistic and psychic stimulus type. He states that there is an innate capacity for spatial perception that is developed by exercise. Recognition of spatial qualities is achieved by a mental activity which is provoked by the qualities of sensory experience which follow the sense stimulation. Spatial meanings are evoked as the actions of the mind to sensory patterns, and are not given with the sensory qualities as attributes. They are meanings read into the object. The crude sensations are goads to the mind to put forth its slumbering power.

James, on the other hand, thought that an extensive quality was given immediately in certain sensations. Stout speaks of this extensive quality as extensity, and his theory is of the nativistic extensity non-sensational type. He defines extensity as being the continuous repetition or diffusion of local sign differences, and says that the perception of difference in place with similarity in all other respects occurs only in sensations having extensity. The apprehension of position, distance, direction, and shape arises through a union of extensity with motion and motor experiences—the union of extensive experience with active movement.

Adequate perception is the correct knowing of the presented facts. The perceptual process may be impaired however in pathological mental states, particularly in the alcoholic psychoses, toxic and exhaustion conditions and in cerebral arteriosclerosis. In these conditions there is a diminution of perception, imperception or agnosia with its branches alexia, agraphia and astereognosis. Ideational inertia, a state in which one idea persists in a series of recognitions, is characteristically found in senile dementia.

Illusions and hallucinations are dealt with in Chapter XXIII.

CHAPTER XII

LANGUAGE

LANGUAGE is an instrument of conceptual analysis and synthesis.

Conceptual Analysis (Stout).

By this process

1. Actual perceptions are broken up.
2. Certain aspects selected.
3. These aspects are of a general character.
4. Each aspect can be a starting point for a series of comparisons. This process of comparison involves the use of language.
5. A series of resemblances are obtained in which there is a common abstract character.
6. In this way the unity of the thing is explicitly distinguished from the plurality of its qualities.

Conceptual Synthesis.

By this process

1. Partial aspects are recombined into a new whole.
2. The several parts are made more definite.
3. Distinctions and relations are apprehended which are obscured in perception owing to its fragmentary character.
4. The world is presented as a unified system.

Thought passes from the abstract to the concrete (Hegel). Conceptual thinking is the distinction of the general or universal from the particular. Now language gives a permanent power of concentrating attention at will on universal factors as distinguished from percepts.

Language is an instrument of conceptual analysis because the signs comprising a linguistic system are each connected with some universal aspect or feature of concrete experience. Each sign tends to fix attention selectively on this universal in distinction from the particular which exemplifies it, and to recall this universal when it is itself mentally reproduced or perceived again. When a series of signs is perceived or imagined in appropriate order, attention is focussed on universals which supplement each other, uniting (conceptual synthesis) so as to form an ideally represented whole (Stout).

Language therefore

1. Fixes in the mind the results of conceptual analysis and synthesis. Here language acts as an instrument of thought.
2. Prompts and controls processes of conceptual analysis and synthesis in the minds of others. Here language acts as an instrument of communication.
3. McDougall states that the primary and essential function of language is to determine preperception by creating expectation. Preperception is thinking of an object before perceiving it.

The Language of Natural Signs.

Strictly speaking, only oral speech can be called language. The term 'language' is applied by extension to

(*a*) Written language.
(*b*) Finger language.
(*c*) Imitative gesture language.

Signs which compose a language must be

1. Easily produced.
2. Easily perceptible.
3. Capable of rapidly succeeding each other without loss of distinctness.

Oral speech fulfils the above conditions.

The most primitive form of language was a system of natural signs—of imitative gestures and sounds (Stout). Natural signs are self-interpreting, and their first production is explained by the tendency of vivid ideas to issue in corresponding movements. Bain said that thinking is restrained speaking or acting. The language of imitative gestures has many defects. It cannot express universals of a high order—*e.g.*, to make. It cannot express the unified results of complex processes of ideal construction—*e.g.*, British constitution. Hence the conventional signs of oral speech, which are produced and perceived more easily and with more rapidity, have displaced the imitative gesture.

Development of Language in the Child (Stout).

1. The child produces various sounds, at first spontaneously, then prompted at imitation.
2. Its earliest cries are expressions of emotion and organic sensation—fear and hunger.
3. The child obtains pleasure in the motor activity of its larynx, tongue, and lips.
4. After a time it distinguishes the universal from the particular (analysis), and ideally represents absent objects by means of their universal characteristics.
5. It forms fixed associations between the name and features common to many otherwise variable objects.

6. It combines words in a context (synthesis) so as to characterise a complex situation.

There are three other theories of the origin of language—

1. *The interjectional*—an expression of the emotions.
2. *The onomatopœic*—mimicry.
3. *The pathognomic*—specific objects so affect man as to elicit from him corresponding specific utterances.

These three theories have been called by Muller

1. The Pooh Pooh.
2. The Bow Bow.
3. The Ding Dong.

They all attempt to trace back conventional signs to natural signs, but they exclude visible gestures and confine attention only to vocal signs. Stout says that the visible gesture is the starting point.

CHAPTER XIII

IMITATION

Some psychologists classify imitation under instincts, and speak of an instinctive impulse to imitate. McDougall does not agree with this view. He holds that imitation in animals is a simple following, prompted by the gregarious impulse and primitive sympathetic reactions. In man imitation is more complex, and has its root in suggestion.

Imitation may be described as a conation which seeks satisfaction in the imitative impulse itself. It is a special development of attention, and must be distinguished from *automatic* imitation, which is routine repetition (Stout).

There are two varieties of *automatic* imitation:

1. Due to habitual association.
2. Due to a general habit of doing what others do.

A general habit of doing what others do has its sources in the following facts:

1. It is easier to follow the majority—an economy of trouble and time is effected.
2. We learn by experience that what others do is often done for sufficient reason.
3. It is unpleasant to attract attention.

The true imitative impulse is an impulse to perform an action which arises from the perception of it as performed by others. This impulse involves attentive consciousness, and is present in its essential features at the perceptual level. In its more complex form it presupposes trains of ideas. Animals do not proceed by trains of ideas. They depend on social tradition, which is largely imitation by the young of the actions of their parents.

Functions of Imitation.

1. By its aid the results of one generation are transmitted to the next—*e.g.*, language.
2. It forms a basis for further development.
3. It is the sole form of social tradition in animals.

As attention is continually striving after more definite apprehension of an interesting action, the perception of an action impels us to imitation when the action excites interest or is connected with something we are interested in. Interest in an action prompts us to imitation in proportion to the intensity of the interest. The interest may be

1. Primary—depending on congenital tendencies.
2. Acquired by experience. If there are fixed congenital tendencies, there is but little power of learning by imitation.

In learning by imitation, the power to imitate is proportioned to the power of performing the same kind of action. Imitation may improve the power, it cannot create it. The power of learning by imitation involves mental plasticity, and is part of the general power of learning by experience.

On the higher levels of mental development the imitative impulse is checked by activity organised in a unified system. Imitation here is for the attainment of an ulterior motive (Stout).

Imitation is of great importance in the development of self-consciousness (*vide* The Self). The child develops the idea of self by a process of imitation.

In this relation Baldwin distinguishes two phases of imitation:

1. *The projective phase,*
2. *The ejective phase.*

corresponding to two mental attitudes of the child.

In the projective phase of imitation the child is submissive, respectful, and receptive. It projects its own experiences on to another person, regarding them as something beyond what it has itself actually attained. It projects elements which it is trying to incorporate and assimilate in the conception of itself. Imitation is here relatively unsuccessful.

In the ejective phase the child is aggressive and self-complacent. It ascribes its own experiences to the other person—ejects them into the other person. Here imitation has been successful. The child's conception of itself coincides with its conception of the other person (Stout).

CHAPTER XIV

MEMORY

MEMORY is reproductive imagination or ideal revival, so far as ideal revival is merely reproductive. True memory consists of a reinstatement of past experiences, the experiences being reinstated in the same order and manner as in their original happening. No inferences must be drawn.

Remembering is a conative activity, and involves the retrospective attitude. The primitive attitude is forward-looking, and hence no animal achieves the retrospective attitude and imagines the past as past. The stronger the motive for remembering, the more efficient is the recollection. Hence interest or strength of conation is a prime factor in remembering. An intention to remember favours remembering. When recollection fails for a time, and then suddenly the forgotten experience emerges into consciousness, conation, in the form of striving to remember, has been working subconsciously. This is an example of the fact that conation outlasts cognition. Conation can influence forgetting as well as remembering. This is well shown in functional amnesia. While desire for an object may render it easy to remember that object frequently, so aversion for an object may prevent the remembering of it. The aversion may be strengthened by fear or pain. In cases of this description the motive which prevents recollection has to be discovered and overcome by calling into action strong motives of an opposite tendency. Hypnosis is a means by which the conative activities of the subject can be controlled, and forgotten recollections can be obtained in this way. Again, by suggestion during the hypnotic state, recollections of experiences may be prevented.

There are three factors in memory (McDougall):

1. Memorising—*i.e.*, the power of committing to memory.
2. Retention—*i.e.*, retaining the traces which facilitate reproduction.
3. Reproduction—*i.e.*, a capacity for reproducing by the aid of retention.

Memorising can be improved by practice. Retention, according to James, cannot be improved by training, but McDougall, in a series of experiments, claims that definite improvement of retention by practice is possible.

James held that retention was due to actual persistence of brain traces. Bergson says that memory is not conditioned by brain traces, but is a purely spiritual or mental function. Freud believes that all experiences leave a trace on the mind, and are never forgotten. When we forget, reproduction, not retention, is at fault. Stout maintains that the power of retentiveness is born as an essential part of the individual's physiological constitution. It differs in memory and bodily habits. There are two conditions involved in memory:

1. Retentiveness.
2. Conation.

These conditions are also common to habit. The mechanists school of psychology thinks that memory and habit are identical functions. Bergson makes a distinction between habit and true memory. Memory is of the mind, but habit is of the body. Habit probably depends to a large extent upon physiological paths in the central nervous system which are formed and deepened by each passage of a nervous impulse. This is not true of memory. He points out that the past survives in two forms:

1. In motor associations.
2. In independent recollections.

Learning by heart has all the marks of habit. Here habit is interpreted by memory. But the memory of each successive reading during the process of learning by heart has none of the marks of a habit. This is a pure memory.

A motor habit is a secondary automatic process. It involves no remembering of the experiences through which it was acquired. It is merely a mechanical process. The motor habit is a cumulative effect of all the successive readings, and bears no unique relation to any one of them like pure memory does.

McDougall agrees with this view, and holds that memory is not the same as habit. He points out that a motor habit is formed by neural association and conation—*i.e.*, association by habit. True memory involves mental association—*i.e.*, association by meaning.

Marks of a Good Memory (Stout).

To have a good memory is to have a well-organised mind:

1. The rapidity and accuracy of actual revival depends on interest.
2. The rapidity with which power of recalling is acquired depends on interest.
3. Length of time power of remembering lasts depends on interest and frequency.
4. Serviceableness—the readiness with which memory produces what is relevant at the moment—depends on forming the right kind of association.

The power of acquiring a good memory depends on

1. Interest.
2. Congenital constitution.

Where the range of interest is very narrow, as in idiots, there is usually good memory. Idiots only apprehend associations by contiguity in time and space, and their power of recall of series of objects connected in this way is remarkable.

Factors Necessary to the Formation of a Good Memory (Woodworth).

1. The will to learn must be present.
2. The task must be studied as a whole.
3. The factors of interest, confidence, and visible accomplishment must be cultivated.
4. Recitation should be first in outline and then the outline should be filled in.
5. Spaced repetitions are more effective and durable than unspaced, but longer periods of study yield larger returns.
6. In unspaced learning, recency is an important factor.
7. In unspaced learning meaning, outlining, and broad relationship should be noted.

Points in Memorising.

1. Memorising by rote is slow and inefficient.
2. The facts and their relationship should be observed.
3. The individual must be active and observant.
4. Resemblances and contrasts should be noted.
5. Indirect attachments should be formed.
6. The pith of the subject should be extracted.

Difficulty in recall depends on

1. Fright.
2. Lack of interest in past experience.
3. Doubt.

Aids in recall

1. Give the stimulus a good chance.
2. Drop the matter for a time.

Perseveration is recall without a stimulus—*e.g.*, the ringing of a tune in the head.

In the mental deterioration found in chronic cases of epileptic insanity perseveration in speech is a frequent symptom and perseveration also characterises many organic cerebral conditions.

The Rate of Forgetting

1. Is more rapid at first.
2. Gradually declines.
3. Becomes after a time exceedingly slow.
4. Traces are retained for years which facilitate relearning.

A curve of forgetting may be made experimentally. The base line is the level of complete forgetfulness, and is marked off in hours. The vertical line is graded corresponding to the number of readings made of a row of nonsense words. It may require twenty readings to learn a row. To relearn the row after five hours may require ten readings, after ten hours, fifteen readings. The decay of memory increases with lapse of time, but relatively the smaller the longer the interval.

CHAPTER XV

EMOTION

Emotion is a mode or quality of experience. The emotions are varieties of emotional experience. The emotional qualities, when functionally considered, are subjective or significant of the nature ot the subject.

Emotions are

1. Cognitive. They signify the nature of the impulsive reaction to things. They are the cognitive basis of self-knowledge and self-control.
2. Accompanied by bodily changes—the expression of emotion.
3. Accompanied by a conative factor. When angry, there is a felt impulse to strike. When afraid, there is a felt impulse to retreat.

McDougall points out that if the conative factor was abstracted, the essence of the emotion would be lacking. The impulsive power of conation in emotion is seen in Darwin's 'expressions of the emotions,' which are adaptations of the body to the various modes of instinctive activity. These serviceable associated actions are characteristic and specific for each instinct. They are best seen in the working of the instincts of escape and combat. By the expressions of the emotions the operation of instinctive activity may often be detected in others. During the operation of the instinct of escape and the consequent experiencing of the primary emotion of fear the following bodily changes take place:

1. Increase in rapidity of heart beat.
2. Increase in rate of respiration.
3. Draining of blood from the digestive and secretory organs.
4. Concentration of blood in the brain, lungs, and muscles.
5. Dilation of the pupil.
6. Evacuation of bladder and intestine.
7. Utterance of a cry of fear.

It will be seen, then, that the emotions are caused by occurrences which powerfully thwart or further instinctive or acquired conative dispositions. The primary emotions are indicators of the working of instinctive impulses (*vide* Synopsis of the Instincts). Their bodily expressions indicate the nature of the instinctive impulse to others and also to the subject. It is here that their essential function lies (McDougall).

Characteristics of Emotion (Stout).

1. Wide range.
2. Varied nature of conditions that arouse it. They are aroused by a general kind of situation, not a specific class of object.
3. Emotion has a parasitical character. It is secondary to some more specific tendency. It is adjectival (Shand).

There are two sources of emotional states (Stout):

1. Definite perceptions or ideas.
2. Organic changes—*e.g.*, alcohol.

Organic changes may operate in two ways:

1. They may directly change the condition of the central nervous system by altering nutrition.

2. They may alter the general state of the body, and therefore alter the nature of the impulses received from the body by the central nervous system (*vide* Mood).

Theories of Emotion.

1. Emotion is a kind of sensation due to general organic disturbances (James-Lange).
2. Emotion is a massive revival by association of past pleasure and pain.
3. Emotion is a tendency to behave in a particular way, and is therefore a mode of conative consciousness.

The James-Lange Theory of Emotion.

James states his theory in the following words: 'My theory is that the bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur *is* the emotion.' In other words, emotion is simple organic sensation. It is the total mass of sensation that rises up—kinæsthetic, visceral, cardio-vascular, etc. Hence emotion is a consciousness of the state of the body. The stirred-up state of mind is the complex sensation of the stirred-up state of body. James says that without the bodily states following on the perception the latter would be purely cognitive in form, pale, colourless, destitute of emotional warmth. We do not tremble because we are afraid, but we are afraid because we tremble.

Points against the James-Lange Theory.

1. It lacks logic. Because emotion and bodily states are connected it does not follow that they are identical (Stout).

2. If the theory is true, it cannot be inverted. Not all organic sensation is emotion—*e.g.*, hunger, cold bath, hyperthyroidism.
3. Organic changes may be similar for different emotions—*e.g.*, anger and fear—and dissimilar for the same emotion.
4. The experimental evidence of Sherrington. The spinal cord of a dog was severed, and yet the dog exhibited the emotion of anger.
5. Ladd's surplus excitation must be considered. Not only does the sensory impulse produce a special sensation corresponding to its specific character, but it also produces a diffuse excitement of a vague kind which may be similar for sensations differing in their special qualities (Stout).
6. The organic changes in James's theory may involve the brain itself and its nutrition, so that the whole effect cannot be referred to sensory impulses coming from internal organs (Stout).
7. James ignores the conative aspect of emotion (McDougall).
8. The theory is inadequate when emotions arising in connection with definite perceptions and ideas are considered. Here the primary origin of the organic sensation is a disturbance of the nervous system. This primary disturbance being the precondition of the organic reaction cannot be regarded as its effects. It is therefore an independent factor in the constitution of the emotion (Stout).

McDougall believes James's theory to be fundamentally correct—but the statement of the theory errs in making mental process too dependent on bodily changes. The statement should be modified to include

A. *Duplication in imagery* of sensory qualities of organic senses. As the special senses are duplicated in imagery, so the organic sensations may be centrally excited in the form of imagery independent of the sense organs.

B. *Conation.*—The subject of emotion would be aware of a strong impulse to action, which is the essence of every emotional reaction. James said, 'I am angry because I struck,' but 'I struck because I was angry' is essentially truer, since being angry involves an impulsive tendency to strike

Stout says that normally organic sensation enters into emotion as a contributory factor, but it does not follow that it is an indispensable condition. Let James be confronted with a chained bear, and then with a free bear. To the first he offers a bun—to the second a clean pair of heels (Ward). It is not the visual perception so much as its striking or startling character, or something learned from past experience.

Emotions may be classified as

1. Primary emotions.
2. Secondary emotions.
3. Derived emotions.

The primary emotions accompany the working of the instinctive impulses (*vide* Synopsis of Instincts).

The derived emotions are blended emotions. Two instinctive impulses may be excited simultaneously —*e.g.*, fear and curiosity. If they are directly opposed, they conflict, and one is inhibited—*e.g.*, aversion and the food-seeking instincts. If they co-operate, there results a blending of the primary emotions of the two or more instincts concerned—

e.g., anger, disgust, and elation =scorn. The primary emotions may be blended in different proportions and in different numbers. The blending of the primary emotions of wonder and submission results in the secondary emotion of admiration. Admiration blended with fear results in awe (McDougall).

The derived emotions are emotions derived from the working of any strong impulse or tendency under certain conditions. They are the result of an interplay of cognition and conation (McDougall). Examples of derived emotions are joy, surprise, and chagrin.

Shand's Prospective Emotions of Desire.

1. Confidence.
2. Hope.
3. Anxiety.
4. Despondency.
5. Despair.

All these presuppose the operation of some strong impulse or desire. They presuppose conation, and arise only in the course of activity prompted and sustained by conation. The conation is independent of and must come into operation before, the rise of these emotions (McDougall).

Retrospective emotions of desire:

1. Regret.
2. Remorse.
3. Sorrow.

Here conation is directed towards the past.

Distinctions between Primary and Derived Emotions (McDougall).

1. The primary emotions arise as the immediate consequence of thinking of some object or situation. They do not presuppose any impulse already operative.

2. Primary emotions arise from a corresponding instinctive disposition.
   Derived emotions may arise in the course of any instinctive impulse.
3. Primary emotions have driving power. Conation is present. Derived emotions have no driving force, they are merely incidents in the working of the instinctive impulses.
4. Primary emotions become organised within the sentiments (*q.v.*). Derived emotions do not become organised within the structure of the mind.

Feelings and Emotions.

An emotion is agreeable or disagreeable, according as the conative tendencies involved are thwarted or gratified. Pleasure and pain are the true types of feeling. Pleasure and pain are conditioned by the interplay of cognition and conation. Appreciation of the success of conation determines pleasure, and appreciation of the failure of conation determines pain.

The derived emotions are conditioned in a similar manner. They are imaginative appreciation of the probabilities of success or failure of the conations. The derived emotions are therefore feelings or affections in the strict sense of the term. They may be regarded as resulting from a differentiation of the fundamental forms of feeling—pleasure and pain. This differentiation accompanies the development of the imagination, and the increase of capacity for the conjunction of pleasure and pain that goes with mental development. Stout points out that there is a blending of pleasure and pain in pity and sorrow.

In the developed mind every primary emotion involves conation and also cognition of the degree and probability of success or failure of conation. Hence all concrete experiences of the primary and secondary emotions are complicated by the derived emotions or feelings. They are tinged with anxiety, joy, or simple pleasure or pain. Therefore the derived emotions are feelings as well as emotions. In the same way belief (*q.v.*) and doubt are derived emotions. They are states of feeling (McDougall).

Affect and Displacement of Affect.

It has been stated that the primary emotions accompany the working of the instinctive impulses. The emotions attached to instinctive desires or wishes are more appropriately alluded to as affect, and where instinctive trends do not obtain full expression the attached affect displays its full manifestations and may aid in the precipitation of mental symptoms.

Complexes are highly charged with affect, and antagonistic complexes may lead to conflict again accompanied by a strong affective tone. Mental disorder may result therefore from the combined factors of unresolved conflict and attached affect.

In conditions of unconscious mental conflict there is a tendency for the attached affect to become displaced and to pervade the mind, ultimately becoming attached to some apparently unrelated subject, physical function or group of ideas. This displacement of affect is a principal factor in the genesis of psychoneurosis.

CHAPTER XVI

MOOD

MOODS are related to emotion, and use the same names. A mood is an affective conative fact of immediate experience. It is an actual affection of consciousness, whereas emotion is a quality of experience. An emotion is felt in relation to some definite object. A mood tends to find objects for itself. An emotional disposition (*vide* Sentiment) is a persistent tendency to feel a certain kind of emotion in the presence of a certain object. The disposition persists in the absence of emotion or mood—*e.g.*, love and hate. Emotional dispositions on the conceptual and ideational planes become very complex, and manifest themselves under varying conditions.

Mood is characterised by a persisting tendency, and may be experienced even when some emotion of an entirely different quality is present.

Moods are displayed by

1. Attitude,
2. Behaviour,

and the subject of a mood is always aware of its presence.

Causes of a Mood.

1. The presence of some strong emotion which is denied free expression. Hence the introvert (*q.v.*) is more subject to moods than the extravert.

2. Organic conditions:

    A. Indigestion }
    B. Gout } irascible mood.
    C. Diabetes }
    D. Excess of thyroxin—timid mood.

Primarily the mood implies some subconscious persistence of conation and emotion. There is a sub-excitement of the affective conative disposition which may be aided by some persistence of the organic resonance of the emotion (McDougall). If is difficult to distinguish clearly between the emotion and the corresponding mood. It is emotion so long as the object which excites it is thought of. If it still persists when the object is no longer thought of, it becomes a mood.

It should be noted that emotion normally subsides into a mood before the excitement wholly passes, and the mood, persisting, may give rise to a re-excitement of the corresponding emotion. As long as the mood persists the impulse is seeking an object—conation is seeking satisfaction.

Long continued and persistent moods tend to become pathological, and are often due to some unresolved conflict of emotional tendencies. Morbid moods tend to find suitable objects, and may even create objects in the form of delusions and hallucinations. This process is akin to rationalisation (*q.v.*).

DISPOSITION.

The various instinctive impulses are inherited in different degrees of strength, and in some cases one or more of the instinctive impulses may be lacking. When one of the instinctive impulses is disproportionately strong, that is the tendency that characterises the individual's disposition. Disposition is the sum total of instinctive tendencies (McDougall).

Amongst the varieties of dispositions found, there are the pugnacious, the timid, the sociable, and the curious, each corresponding to the instinctive impulse which may predominate. The disposition is a manifestation of the dominating impulse.

The strength of any instinctive impulse will increase relative to the other instinctive tendencies when it is continually being exerted. The goal to be sought is a balance of tendencies, no one tendency being more prominent than another. Self-control and discipline are the forces that keep the instinctive tendencies in check, and in the absence of these factors an unbalanced and inharmonious personality may result.

TEMPER.

Just as the strength of the instinctive impulses builds up disposition, so does the mode of action of the conative impulses result in temper. Temper is the expression of the way the conative impulses act.

There are three ways in which the working of the conative impulses varies (McDougall). They may vary in

1. Strength, urgency, or intensity.
2. Persistence.
3. Affectability—*i.e.*, the degree to which the impulses are influenced by pleasure and pain.

The varieties of temper are very numerous. An individual may be of an impulsive temper, a steadfast temper, or a fickle temper. The average is an equable temper.

TEMPERAMENT.

Temperament is the complex resultant effect on mental life of metabolic and chemical tissue changes. It is in the main natively determined, but it is susceptible to environmental and mental discipline. It influences the growth of intellect and character.

Chemical substances are constantly passing into the blood and influencing the central nervous system. Some influence all parts of the central nervous system, others are selective in action—*e.g.*, alcohol and chloroform.

Alcohol produces a temporary modification of temperament. Under the influence of alcohol an individual personality finds its true expression. Social conventions and inhibitions are broken down, and the real self exposed. These effects are all due to the influence of alcohol on cerebral processes.

Factors tending to Control and Modify Temperament.

1. *Hormones.*—(A) Thyroxin. Excessive secretion of thyroxin (Graves) results in a quickening of the nervous processes. An excitable, restless, agitated temperament may follow. Deficient secretion of thyroxin (myxœdema) may lead to a sluggish or torpid temperament.

(B) Pituitary. Pituitary secretion profoundly influences the bodily growth, with a consequent reaction on temperament.

(C) Adrenalin. The secretion of the adrenals regulates the circulation of the blood and influences the state of bodily activity.

(D) Sex glands. The internal secretion of the ovaries and testicles develops the reproductive instinct and in part determines the degree of sexual appetite.

2. *The Cœnæsthesis.*—Organic sensations arising from the various organs of the body colour and tone mental experience. Continued indigestion may give a melancholy, peevish tone to the temperament. A hypochondriacal temperament may ensue. A good

digestion gives rise to a cheerful and contented temperament. An active muscular system results in efficacy of mental life.

3. *Constitutional Peculiarities of the Central Nervous System.*—The degree of liability to fatigue, and the rapidity of recuperation from the effects of fatigue, have a bearing on temperament.

4. *Bodily Inferiority.*—Deformity, short stature, irregularity of features, etc., tend to influence temperament. There is a shyness and shrinking from the world, and often a compensatory egotism may be evolved resulting in exaggerated self-assertion and over-confident bearing. (*Vide* Chapter XXVII.)

5. *Degrees of Introversion.*—Jung distinguished introversion and extraversion as the extremes of a continual scale formed by degrees of introversion. The introvert or schizophrenic is cold, moody, and aloof. He is awkward in society, out of touch with reality, subjective and shut in. His impulses and emotional stirrings are denied free expression, and a mental state of brooding and reflection is maintained. Pathologically, schizophrenia expresses an extreme degree of introversion.

The extravert, or cyclothymic, is sociable and clubable. His interests are directed towards his environment, and his emotions and impulses find free expression in action and speech. An extreme degree of extraversion is found pathologically in manic-depressive insanity. (*Vide* Chapter XXVI.)

Some observers maintain that the endocrine pattern is different in the two types. A clear-cut type is rarely found. Usually there is a mixture of the two types. The position of an individual's temperament on this scale is largely a matter of native constitution, but it is susceptible to environmental and disciplinary influences, especially during youth.

PERSONALITY.

Disposition, temper, and temperament are the raw materials of personality provided by heredity. From them character is built up under the touch of experience and the guidance of increasing knowledge and intelligence (McDougall).

The ultimate test of an individual's personality is the way that he reacts to life. The effects that environment and acquired influences have upon personality are far-reaching and profound. Education, example, and moral control do much to form personality, especially in early life. While the inborn factors are of importance, upbringing and environment have much to do with producing abnormal attitudes towards life.

An individual's character is his total habits of reaction. Schemes for the estimation of character and for the scientific study of personality have been elaborated, especially by American psychologists. Questions are asked concerning the subject's reaction to particular experiences and standard situations, but the only real test is the way in which he reacts to life.

Abnormal Personality Types.

In addition to Jung's personality types with their abnormal variants (*vide* Chapters XVI, XXVI) four important additional types of personality have been described.

The study of type psychology has thrown considerable light upon the factors involved in the ætiology of mental disorder, which may be regarded as a personality disorder precipitated by the faulty adaptations made by constitutional types to internal and enviromental stresses.

(1) *The Hysterical Personality* (Logre).

The hysteric make-up is the constitutional background upon which the manifestations of hysteria display their protean complexity.

The hysterical personality is characterised by emotional instability, an egoistical attitude to life and an inherent proclivity to avoid life's stresses and difficulties by transferring personal responsibility from the individual to those who are in contact with him. Selfish, childish and immature, the hysterical personality tries to evade the necessity for adaptation by evoking sympathy and help from others. This process is aided by extravagant display, theatrical conduct and autistic in contrast to realistic thinking.

(2) *The Epileptic Personality* (Pierce Clark).

The epileptic personality is said to exist previous to the onset of epileptic fits.

The epileptic character is typified by self-assurance, intolerance and immaturity. Religiosity is marked and inferiority feelings are compensated for by a domineering and insubordinate attitude. There is a lack of moral sensibility and a highly individualistic outlook which results from want of development of the social and group sensibilities. Vanity, absence of self-criticism and of realistic thought are typical.

(3) *The Paranoid Disposition* (Mapother).

Meyer has pointed out that the paranoid personality is characterised by a feeling tone (affect) of suspicion, hypersensitiveness and mistrust which result in a fundamental inadaptibility to social life. Lack of self-confidence arises from inferiority ideas and from guilt feelings, and with continued want of adequate adaptation the mental symptoms of paranoia make their appearance.

(4) *The Psychopathic Personality.*

Definitions of the psychopathic personality vary, but the dominating factors are emotional instability, maladaptation and defect of wisdom existing to such degree that result in continuous or repeated antisocial conduct.

The psychopathic personality displays an incapacity to learn from experience, a defect of moral sense, and a lack of wisdom coupled with psychological immaturity and an inherent difficulty in adjusting to the demands of community life.

CHAPTER XVII

BELIEF

BELIEF and doubt are derived emotions or states of feeling which are conditioned by the interplay of conation and cognition. Belief is confidence in the intellectual plane, and doubt is hesitation on the intellectual plane. Belief grows up gradually out of confidence with intellectual development, and always implies memory. Belief in the fullest sense must be preceded by doubt, which is followed by judgment.

Doubt may be altered to belief in one of three ways (McDougall):

1. By definite perception.
2. By communication from another person.
3. By reasoning from previously established beliefs.

These three ways are cognitive, but it should be noted that the conative factor is of importance. If interest is not present, there is no incentive to believe or disbelieve. The more active the conative impulse the more intense is belief or doubt.

Doubt is resolved by judgment. In judgment there is present a strong conative factor which is made apparent by the action of suggestion. Suggestion may evoke the submissive impulse resulting in judgment being swayed usually towards the positive aspect.

Judgment is the interplay of cognition and conation. Without interest, the necessity for judgment does not arise. Implicit judgment accompanies all cognition. It is only gradually that a state of suspended judgment is evolved. When affirmation or denial follows judgment, belief becomes explicit.

General Conditions of Belief (Stout).

Belief is

1. A condition of activity.
2. Conditioned by activity.

What is believed can be acted on. Striving after an end is striving after the means to the end, but psychologically considered, what is striven for is belief, which alone makes action with a view to the end a possibility. Hence there are two factors which cooperate in the formation of belief:

1. The subjective factor.
2. The objective factor.

Stout points out that belief depends on *subjective* tendencies. Ends can only be realised by the use of means, but the subject has to have some belief in the efficiency of the means in order to use them. Therefore the impulse to pursue an end is also an impulse to form beliefs.

The *objective* factor depends on the nature of the real world. The means that are used are conditioned by the actual facts of existence, and belief must conform to these objective conditions. Again, the beliefs of an individual are determined to a large extent by the beliefs common in the community in which he lives. This social factor is an objective factor in the formation of belief.

All belief involves objective control of subjective activity. The nature of the object enforces certain ideal combinations to the exclusion of others. But objective control depends on the end to which mental activity is directed. If practical ends are aimed at, only certain combinations of ideas are possible. If practical ends are not the aim, any ideal combination may be possible. Full belief is belief which is not blended with imagination, but contrasted with it, and it is only in the pursuit of practical ends that full belief is found, because here objective control is predominant (Stout).

Rationalisation.

Motives for action and belief are very obscure, and are often wrongly attributed. When the motive for a belief is sought, what tends to emerge is a rational explanation of the belief or action. This explanation appears reasonable, and beliefs and actions are commonly explained according to the principle of sufficient reason. The real motive may be, and usually is, a very different one. In many cases an explanation is invented and put forward as the true motive. This process is known as rationalisation.

Belief in the Reality of the Self.

Belief in the reality of the self is fundamentally aroused by the power of conation—of striving—of persisting towards a goal. McDougall says that Descartes' dictum *Cogito, ergo sum* (' I think, therefore I exist ') should be ' I strive, therefore I exist.' The fact of exerting effort is a chief factor in the conception of personal reality.

Belief in the Reality of Other Things.

This is determined by a projection of personal reality. Striving is against resistance—what exists has force, and is therefore real.

Systems of Beliefs.

Beliefs are enduring features of mental structure, and are established by reasoning which is the method of trial and error taking place on the plane of imagination. Reasoning may be deductive or inductive. Reasoning aided by suggestion is persuasion, and this is a common mode of establishing beliefs.

Beliefs may be

1. Isolated.
2. Loosely knit.
3. Organised into systems.

In the case of beliefs organised into systems it is the exception to find coherent, consistent, and supporting systems of belief. Most minds have detached systems of beliefs more or less logically independent. These become organised in the sentiments.

False Beliefs.

A delusion is a persistent false belief, but, since beliefs differ from epoch to epoch and are governed by the beliefs in vogue at the time and are also dependent to some extent on the believer's educational and environmental status, care must be exercised before stigmatising a belief as a delusion.

Delusions are manifestations of disorders of judgment and are individual beliefs which are not true in fact and which cannot be supported by logic or reason.

Many delusions arise from inadequately repressed complexes and the delusional content may symbolise in a distorted manner the conflicting trends. Again, delusions may be found in conjunction with hallucinations, and here an hallucinatory experience is explained by a false belief. Delusions may also arise in connection with the mechanism of projection (*q.v.*). Delusions of persecution usually arise in this way and are dependent upon the complex being projected on to some imaginary or actual person.

In folie à deux delusions may be 'communicated' to someone in constant association with the deluded person.

There are many varieties and classifications of delusions, but the importance of delusions can only be adequately assessed when the mental picture is studied as a whole.

CHAPTER XVIII

SENTIMENT

A SENTIMENT is an organised system of emotional tendencies. It involves an individual tendency to experience certain emotions and desires to some particular object. It is an enduring conative attitude towards an object set up by the experience of the individual (McDougall).

Sentiments are

1. Acquired }
2. Enduring } trends.
3. Conative }
4. Directed towards some particular object.

An instinct is a directed conative trend which is innate.

Shand distinguished sentiments and emotions. He stated that emotions are adjectival. They qualify a more stable feeling—the substantives. Sentiments are the relative stable centres—the substantives, to which emotions attach themselves as adjectives.

A sentiment is a disposition. An emotion is an actual state of consciousness—a mode of experience or a fact of activity. Sentiment is a complex emotional disposition which manifests itself variously under varying conditions. These varying manifestations are the actual experiences which are called emotions. Hence emotions are episodes in the life history of sentiments.

On the perceptual plane the actual presence of a dangerous situation excites fear. On the ideational plane the ideal prevision of a dangerous situation excites fear. But on the ideational plane the specific tendencies conditioning the occurrence of emotion are much more complex. Each system of ideas is a general tendency to feel and act in certain ways under certain circumstances. Ideal systems from this aspect are sentiments (Stout).

It should be noted that while emotion is a mental function, sentiment is a mental structure. McDougall's definition of a sentiment as being an organised system of dispositions which endures in a more or less quiescent condition between the occasions upon which it is brought into activity, contains most of the above salient points.

The Formation of a Sentiment (McDougall).

A simple sentiment is formed through the repeated evocation of some one instinctive response by some one object. It is a single cognitive disposition associated or functionally linked with a single affective conative disposition.

The Sentiment of Awe.

1. The primary emotion, fear, of the instinct of escape becomes linked with
2. A certain person or power,
3. In whose presence the emotion of humility (instinct of submission) is felt.
4. When thinking of the person or power the sentiment of awe is experienced.

Awe therefore consists of fear + submission.

Awe + gratitude = reverence.

The Sentiment of Hatred.

1. The emotion of fear (instinct of escape) is evoked by
2. A certain person who arouses

3. The instinct of pugnacity with its primary emotions of anger.
4. An organised system of dispositions is formed, and the sentiment of hatred results.

Hence the sentiment of hatred is built up of repeated experiences of fear and anger, which are evoked by one object.

The Sentiment of Self-Regard (McDougall).

This sentiment is the strongest and most frequent of all the sentiments. The self is always regarded as the self in its social setting, and to have the sentiment of self-regard is to be sensitive to public opinion.

1. The conception of self is fundamentally founded on experience of striving.
2. The self is thought of by a name (language).
3. The idea of self becomes more extended as the self asserts itself against other selves.
4. The self in its social setting is rewarded or punished according to its deeds, and the instincts of *self-assertion* and *submission* are brought into play.
5. Hence the self becomes cognisant of its limitations and capabilities.
6. Actual reward and actual punishment becomes moral approval and moral censure.
7. And the self learns by suggestion and persuasion to judge itself and other selves, and to erect a system of beliefs about itself.

It will be seen, then, that the sentiment of self-regard has its root in the two conative dispositions of self-assertion and submission. Normally, these two dispositions are balanced, and the sentiment is self-respect. Should self-assertion predominate, the sentiment is one of pride or megalomania.

The sentiment of self-regard may become extended to

1. Possessions.
2. Work of hands and brain.
3. Family.
4. Children.
5. School.
6. Profession.
7. Town. } Social groups.
8. Country.
9. Nation.

The moral sentiments, such as honesty and dishonesty, truth and falsity, are elaborated by suggestion and sympathetic contagion from the observation of admired personalities. The moral as well as the physical attributes of the admired person are cultivated, and ultimately the moral sentiments of the herd. McDougall says that moral culture consists in the refinement of these sentiments by reflection and reasoning. They have considerable bearing upon conduct.

Moral Character.

The units of character are the sentiments. James says that the moral sentiments are less powerful than the instinctive tendencies. On the other hand, ideal impulse, aided by an unknown quantity, keeps the instinctive propensities in check. Throughout the ages the character of this unknown quantity has been debated. Plato thought it was reason. Shaftesbury said it was good taste. Butler believed it to be conscience, and James explained it as a fiat of the will. McDougall states that the unknown quantity is an impulse awakened within the sentiment of self-regard. It is the desire that the self shall realise in action the ideal of conduct which it has formulated and accepted.

CHAPTER XIX

SLEEP

THERE are many theories regarding sleep, some of which may be summarised under the general headings of physiological and psychological.

A. **Physiological Theories.**

1. The *energetic* theory states that sleep enables energy to be regained. A debilitated condition of the neurones due to nervous activity is corrected by sleep.
2. The *circulatory* theory. Sleep is due to cerebral anæmia. This theory is supported by a fair amount of experimental evidence.
3. The *biochemical* theory states that sleep is due to carbon dioxide narcosis.
4. The *neuro-dynamic* theory. During sleep the dendrites contract and the nervous impulses cannot pass with their normal freedom.
5. The so-called Sleep Centre in the hypothalamus. In reality a centre controlling wakefulness.

B. **Psychological Theories.**

1. *Kraepelin* theory. Sleep is an act and an instinct. It is an act designed to prevent exhaustion, and is not due to exhaustion. Sleep is an inborn tendency comparable with other inborn tendencies, and is capable of being influenced by the will. It is not a negative or passive state, but something that is enacted.

In the baby it is an instinctive process comparable to hunger, but later the child's will becomes involved, and sleep may be modified by voluntary mental factors. Other factors, such as suggestion, may also modify it. The hour of sleep may be postponed if the mind is interested in some other activity. The factor of confidence is of much importance. The strong willed (Napoleon) can put themselves to sleep at any time. Psychopathic patients lose their confidence in going to sleep.

2. The *behaviourist* school of psychology lay great emphasis on muscular relaxation in sleep. In going to sleep, all the muscles should be relaxed, especially those of the tongue, throat, and hands.
3. *Pavlov's* theory. Sleep is cortical inhibition. Pavlov's experiments on dogs tend to show that the cortex consists of a network of inhibitory and excitation areas, within which the dynamic activities of irradiation and induction are constantly going on. Certain changes in the cortical equilibrium which were produced experimentally by Pavlov resulted, in some cases in natural sleep, and in others in a form of hypnosis.

Physical Changes during Sleep.

1. Reduction of blood pressure.
2. Slowing of respiration.
3. Diminution in CO_2 elimination.
4. Reduction of body temperature.
5. Relaxation of muscles.
6. Contraction of the pupil.
7. Sexual functions active.
8. Digestion active.
9. Sweat glands active.

The depth of sleep under normal conditions may be experimentally tested by dropping a series of weights and noting the amount of weight necessary to arouse the subject during the different hours of sleep. It has been found that sleep is deepest during the first hour.

CHAPTER XX

DREAMS

DREAMS are play of the imagination. The chief characteristic of dreams is their seeming reality—images are accepted as real. Most dreams occur when sleep is lightest and the recall of images can take place. Judgment, criticism, and reasoning are suspended. A dream is an example of apperception. The stimulus arouses a series of thoughts and images that are symbolic of the stimulus itself.

During waking life there is constant adjustment, both mental and physical, to reality. During sleep reality is occluded, but mentation continues in the form of dreams. One of the chief differences between the waking and sleeping state is that during sleep all the senses have an equal opportunity, and impressions from them are not so liable to be overlooked. The stimulus which arouses dreams is often that which has been unnoticed during the day.

Stimuli for Dreams.

1. *Any Sensory Stimulus.*—The howling of the wind, the ticking of a clock, the organic sensations of dyspepsia, the brightness of a light, etc., may all serve as stimuli for a dream. In these cases the dream is an illusion—a false perception. It may be an hallucination, a train of thought and images without much relation to present sensory stimuli. The stimulus that arouses dream thoughts is always converted into a visual picture. There is no

auditory image, speech does not take place, but there is interchange of thought.

2. *Touch and Pressure Stimuli* are of importance in arousing dreams. Rivers carried out a large amount of experimental work in this direction and found that any uncomfortable tension may be reflected in a dream, and may determine a dream and its contents.
3. *Organic Sensations* may arouse dreams. The nightmare following injudicious indulgence in food is a familiar example.
4. *Lower Respiration* during sleep results in the blood being charged with carbon dioxide, which may have an exciting effect on the sensory areas of the brain.

Characteristics of Dreams.

1. A tendency to think in visual images rather than words.
2. Fantastic thought. There is no adequate emotion experienced. Thought is grotesque, illogical, incoherent, and inconsistent, and may be simply a free play of the imagination.

Types of Dreams.

Dreams have probably some individual kind of significance. This fact is shown by recurrent dreams, generally of the anxiety type.

1. Wish fulfilment dreams. Dreams of this kind are common. Their contents consist of something that the subject is striving for and cannot obtain. The self-assertive impulse may obtain its only satisfaction in the dream state.
2. Fear and anxiety dreams. Freud regards fear as a symbolic representation of a positive desire. But there are probably true fear

dreams which may be brought about by dyspepsia or nervous strain, or simply by recall of a fear stimulus through association.

Freud's Theory of Dreams.

Dreams are wish fulfilments. In the child the wish is conscious, and in the dream undisguised. In the adult the wish is often unconscious, and often symbolised in the dream. The unconscious wish has been suppressed, and the dream is the symbolic expression of the unconscious and suppressed wish.

The unconscious mind, according to Freud, consists of forbidden wishes. The wishes have been forbidden by the censor—the moral and social standards of the individual. During sleep the wishes evade the censor by being disguised and symbolised.

The majority of wishes are sex and spite wishes, the spite proceeding from the interference of other people with the subject's sex wishes. Since the sexual impulse is the most common to suffer repression, dream contents have usually a sexual basis.

Analyses of dream contents have been carried out by Freud, Jung, and Rivers, and the study of the unconscious mind has been greatly extended by these means. (*Vide* Chapter XXV.)

Objections to the Freudian Theory of Dreams.

1. Suppressed wishes are not so universally unconscious. It is not so much the unconscious wish that finds expression in dreams as the unsatisfied and conscious wish.
2. Freud does not place sufficient importance upon the self-assertive tendency, which in herd life suffers much suppression.
3. Recall mechanism and free association is very easy, and the images in dreams come largely by free association.

CHAPTER XXI

THE SELF

At the perceptual level of mental development the conception of the self is implicit in the apprehension of the physical body. As mental development progresses and trains of ideas come into being, there is a corresponding development of the awareness of self (Stout).

1. The self of perceptual consciousness is ideally enlarged, and comes to mean the self striving and acting, not only during the immediate present, but also in the past and future.
2. The apprehension of the self includes processes of cognition, conation, and affection concerned with trains of ideas as well as with things actually present to the senses. Volitions, cognitions, and emotions are comprehended independently of contact between the embodied self and its actual surroundings. There are remembrances of past trains of ideas and reference to possible future trains of ideas.
3. A distinction between the inner and the outer selves becomes to be appreciated. The outer self, or self of perceptual process, is apprehended as the whole visible body, the vehicle of perception and motor activity. The inner self, or self of ideational process, is apprehended as something which is situated internally, localised in the breast, which is the chief

seat of emotional disturbances. Ideally represented objects give rise to organic and motor sensations which seem to be experienced by an internal self, and the movements and attitudes of the body appear to be initiated by something within the organism.

4. The social factor is of much importance in the evolution of the self. The self must adapt itself to its social environment. In order to do this, practical motives have to be studied, and the relationship of the self to other selves enriches the conception of the self. A proper understanding of the behaviour of other selves has its basis on data derived from the self's own experience, and hence in the process of constructing a representation of other selves, the self must construct a representation of its own subjective experience (Stout).
5. The thought of the self always involves the thought of its relations to other selves. Therefore the self must always be studied in its social environment. The self has to consider its own attitude towards other selves. It must please or placate other selves. since life in the herd is rendered the more easy the more harmoniously its relationships work.
6. A man's own ideal representation of himself includes the view which he thinks others take of him. In relation to superiors it is a submissive self; in relation to inferiors it is an assertive self; in relation to enemies, it is a combatant self (Stout).

Imitation (*q.v.*) and its two phases of projection and ejection are intimately concerned in the working of the social factor.

7. Through the organisation of conative tendencies the self comes to recognise its own permanent unity.

The One Self and the Many Selves (Stout).

During the experiences of conscious life, it frequently appears as if there are two or more selves striving in the same conscious individuals. There is a temporary, fleeting, and partial dissociation of the personality which perhaps is brought about by external circumstances. The struggle between good and evil, between moral principle and temptation, often appears as a conflict between two separate self-entities. The true self, which is the self of normal flow of thought and action, should act as the arbiter and controlling influence.

In true dissociation of personality (*q.v.*) which is pathological, the life history of the present phase of the self may be entirely discontinuous and unrelated to its past.

The Conative Aspect of the Conception of the Self.

The concept of self includes

1. The life history of the individual.
2. His present, past, and future.
3. His possible and imaginary developments.

During the evolution of the self there is a corresponding evolution of character. Character in action is will (McDougall), and will implies deliberation and choice. Volition is the expression of the whole personality, but fundamentally volition is the working of the conative impulses springing from the instinctive dispositions. Impulsive action follows the isolated conative tendency. In voluntary decision special conations and their ends are first considered in their relation to the whole system of tendencies incorporated in the concept of self. Stout points out that voluntary action does not follow either of the conflicting tendencies as such. It follows the self's preference of one or the other. It is the conception of the self that is the controlling agent.

Frequently the thought of the self does not at once decide the question, and decision is arrested in order that time may be obtained for *deliberation*. In this case there is a conflict of motives. Motives are the alternatives that come before the mind. The winning motive is the motive for action.

Now motives presuppose the conception of the self as a determining influence, and since the ultimate self is an unanalysable factor, the recognised reasons for a decision can never constitute the entire cause of the decision.

Deliberation is a state of unstable equilibrium. As the process advances, equilibrium tends to become restored.

Factors in making a decision are

1. Aversion to painful suspense.
2. Necessity for action of some kind.

Voluntary decisions are fixed by

1. Identification with the concept of the self.
2. Social relations.
3. Vanity.
4. Action that follows the decision.
5. Inherited constitution.

Fixed Ideas (Stout).

A fixed idea is an idea that passes into action without preceding volition. The idea of the action dominates consciousness and defeats the will. Pathologically fixed ideas are generally due to imperfect powers of deliberation. The conative tendencies which would restrain the act are dormant, and the unity of the ego is not properly developed. An idea in normal circumstances is fixed by appetite or craving arising from organic conditions.

Self-Control.

Self-control is control arising from the self as a whole and determining the self as a whole. It is greatest where there are ideals and general principles of conduct. Failure in self-control depends on

1. Lack of evolution of concept of self.
2. Degree of development self-consciousness has attained.
3. Organic conditions which disorganise the self.

CHAPTER XXII

COMPLEX CONFLICT AND DISSOCIATION

SENTIMENTS and complexes are by some psychologists treated as identical, but it is better to restrict the term 'complex' to acquired conative settings which are in some degree morbid owing to their lack of harmony with the rest of the character. Complexes, then, are sentiments that are in some manner and degree pathological (McDougall).

A complex, according to Freud, is a repressed but subconsciously operating tendency—*e.g.*, Œdipus complex is repressed sexual attraction to the mother with a repressed jealousy of the father.

Hart's definition of a complex as a system of emotionally toned ideas is one which is in general use. The word 'constellation' is used by some authors, and refers more especially to unconscious complexes.

Any hindrance to the proper functioning of instinctive activity may result in a repression of vital energy with its strong emotional tone. Such a condition may give rise to a complex.

A complex, whether conscious or unconscious, will either reciprocate or antagonise with other complexes. If they antagonise, unless the disharmony is resolved, conscious or unconscious conflict may result. Most of the mental conflicts are between the ego and the herd complex—a struggle between the complex and the personality (Hart).

Complexes can be unearthed by means of association tests, and these series of hidden ideas with their strong emotional colouring may be brought out of the unconscious mind and exhibited to the conscious cognitive mind with beneficial results in many pathological cases.

There are two kinds of association tests:

1. **Free association.**
2. **Controlled association.**

Free association is illogical thinking. It occurs in reverie. One fact recalls another according to the advantages of recall, which are

1. The frequency with which linkage has occurred.
2. The intensity of the linkage.
3. The recency of the linkage.
4. Present state of subject's mind.

Kraepelin, Jung, and Freud elaborated free association tests. In these tests there is always a strong emotional content. It should be noted that free association is in reality controlled association inasmuch as the response must be a word.[1] Woodworth points out that words are so frequently linked together that the response may be automatic.

In the free association test a list of stimulus words are read one at a time to the subject, who is directed to reply with whatever word comes first into his mind. The reaction time is noted. From the nature and character of the response much may be learned regarding the subject's mentality and the contents of his unconscious mind.

Complex Indicators.

1. Bodily manifestations
    - (*a*) Stammers.
    - (*b*) Gestures.
    - (*c*) Sighs.
    - (*d*) Galvanic response.
2. Lengthened reaction time.
3. Misunderstood stimulus word.
4. Response given describes some object in sight.

5. Repetition of stimulus word by subject.
6. Minor change in the response.
7. Subject replies with a different response on being asked again.
8. Foreign language response.

Controlled Association Tests.

In the controlled association test there is a definite interest and purpose directing the associative processes. Reaction time in controlled association is shorter than in free association where the elements of choice and impulse enter. The stimulus word in the controlled association test is answered by a word standing in specific relationship to it—*e.g.*, opposites. Names of countries—capitals.

It is pointed out by Woodworth that the control acts not only by limiting the response, but also by facilitating it. The results given by controlled association tests are not so good as those given by free association.

Dissociation of Consciousness.

A system of ideas is said to be dissociated when it is divorced from the personality, and when its course and development are exempt from the control of the personality (Hart).

In true dissociation, which is pathological, the mind is broken up into separate compartments, each one independent of the other and each carrying on its own mental progress. The stream of consciousness may be divided into two—the co-consciousness of Morton Prince—and a primary and secondary personality may be evolved. Cases of this description are called double personality (Dr. Jekyll and Mr. Hyde). Proper subjective control does not exist, and each personality pursues its own course independently.

In these cases there is often some profound change in the experiences connected with organic sensation.

Types of Thinking.

There are two types of thinking:

1. Realistic.
2. Autistic.

The normal type is *realistic* or adapted thinking. Here each association aroused is controlled by some interest. A goal idea is present throughout. This type of thinking is difficult and exhausting. Inhibition is also present, since other subjects are shut out.

Autistic thinking is where there is no controlling interest—no goal idea. Associations are aroused capriciously and superficially—*e.g.*, punning.

Phantasy is day-dreaming, and is a mode of satisfying complexes. Mental pictures are built up without regard to reality, or the individual identifies himself with the character, usually the hero, in some novel.

Autistic thinking is determined by desire, not facts. It is a wish fulfilment and a release of tension. No criticisms or effort is exerted. It is unadapted and ineffective, and usually fantastic and regressive. It is found in schizophrenia, where the patient shuts out the reality of life and retreats to a world of his own creation.

CHAPTER XXIII

ILLUSION

An illusion is a false perception. In illusions the past distorts the present. The stimulus is responded to by an act of perception, but the mind supplies the meaning (*vide* Psychic Stimulus Theory), which, in the case of illusion, is incorrect.

Classification of Illusions (Woodworth).

1. Illusions due to peculiarity of the sense organs, physiological illusions—*e.g.*, after images.
2. Illusions due to preoccupation. The preoccupation of the mind facilitates responses in its own line—*e.g.*, ghost-seeing.
3. Illusions of the response to analogy type—*e.g.*, Aristotle illusion.
4. Illusions due to imperfect isolation of the relevant fact—*e.g.*, Poggendorf's illusion.

A state of strong emotion is conducive to illusion, as is also a state of expectant attention.

In pure illusion (Stout) there is no element of hallucination, and the senses are in a normal state, and are affected in a normal way by an actually present stimulus, but the resulting impressions suggest the presence of something of a different nature to the stimulating object. Pure illusions may be shared by a number of people at the same time—*e.g.*, tricks, but collective hallucinations are of rarer occurrence. A perception may be partly an illusion and partly an hallucination.

HALLUCINATION.

An hallucination is a recalled fact taken for a present objective fact—an image taken for a sensation. The image is believed to be an actual perception.

All hallucinations are sensory responses aroused by substitute stimuli without the subject being aware that they are so aroused. They are percepts without sensory foundation in the environment.

The subject's hold on objective fact is weakened by his own desires and fears, and he sees visions that are in line with his desires and fears. Hallucinations involve errors in reasoning and judgment which are often due to pathological affections of the central nervous system.

In dreams the objective situation is lost sight of and images appear real. Hallucinations, especially those of the visual type, have all the attributes of perceptions, but in reality they are simply images. Ultimately, the only difference may be in their mode of production—the image is internally conditioned, the percept externally. The impressional experiences are due wholly or partly to an abnormal state of the sense organs themselves or of their nervous connections.

Conditions of Hallucinations (Stout).

1. Variation in nature and distribution of the cerebral blood supply.
    - (*a*) Alcohol.
    - (*b*) Opium.
    - (*c*) CO_2 narcosis.
2. Pathological affection of cortex. The hallucinations of the insane.

3. Peculiar state of central nervous system co-operating with normal stimuli.

Synæsthesia is a response to a stimulus acting on one sense by sensations belonging to a different sense —*e.g.*, coloured hearing.

CHAPTER XXIV

INTELLIGENCE AND INTELLIGENCE TESTS

INTELLIGENCE is a term that has been used loosely and without adequate definition by many authors. Psychologically considered, the word 'intelligence' has at present no fixed meaning, every psychologist adopting his own definition. It is generally agreed, however, that intelligence is due to native constitution, and is refined and developed by environment and education. Native constitution determines mental ability by fixing limits and making the individual responsive to certain stimuli (Woodworth). Factors in intelligent behaviour are

1. Retentiveness.
2. Persistence.
3. Responsiveness to relationships.

Intelligence has been defined as the capacity to improve upon native tendencies in the light of past experience.

Psychological definitions of intelligence tend to emphasise the intellectual qualities of mind. Spearman refers to a 'central factor' which he calls general ability. Other psychologists speak of mechanical, abstract, and social intelligence, but in most cases the intellectual group of factors are meant. It is important to note that, while the term 'intelligence' may be applied to such faculties of mind as memory, attention, association, etc., the presence or absence of a due balance and proportion between these faculties may prove to be of great assistance in testing the intellectual reaction of normal or mentally deficient children.

For educational reasons, and from the standpoint of mental deficiency and criminology, it has been found necessary to have some form of test by which mental efficiency or general ability could be estimated.

The Binet-Simon tests were one of the first to be elaborated, and their modification by Terman is in general use at the present time.

The object of the Binet-Simon tests is to look for acquired information and skill. The tests are for a measure of general intelligence. They have been standardised over a large number of normal children from five to fourteen years of age, whose results have been graded and formulated into a basis for comparison. At each age there is a series of tests that a normal child of that age should be able to answer.

Binet measured intelligence in terms of mental age. Mental age indicates the intellectual level at a given time. An average child of seven years of age has a mental age of seven. Any child whose reaction to the test reaches the same standard has a mental age of seven irrespective of his actual age.

If the child's mental age is the same as his actual age, he is average. If his mental age is above his actual age, he is bright. If below, he is dull.

There are several objections to this method of measuring intelligence. In the first place, it is an educational concept, whereas the *social* point of view is of primary importance. It is arbitrary, and the question of awarding marks admits the personal factor. Too much reliance should not be placed in mental tests, however useful they may be as a conventional measurement. The only real test is the test of life.

The Intelligence Quotient measures brightness or dulness, and indicates mental progress. The intelligence quotient (I.Q.) is the mental age divided by the actual age and expressed as a percentage.

I.Q. of the exactly average is 100 per cent.
I.Q. of the bright child is above 100 per cent.
I.Q. of the dull child is below 100 per cent.
I.Q. of less than 75 per cent. shows mental deficiency.

Factors Necessary in the Use of Binet Tests.

1. Training in the use of Binet scale.
2. A quiet room.
3. No audience.
4. Child must not be sleepy.
5. Praise; do not blame.
6. Instructions should not be repeated.
7. The child should not be hurried.
8. Commence a year below actual age.

In addition to the Binet form of tests, there are performance tests for the deaf child and for children suffering from speech defects. In many tests, form blocks are used, and the child is asked to fit loose blocks into their correct places in a board, or to complete a picture by inserting representations of objects. Errors are counted, and the time taken is noted.

Mental tests have been greatly extended by American psychologists who have tested the intellectual capacity of large sections of the population by the Alpha test. More recent mental tests are Penrose and Raven's Progressive Matrices, by which the general factor (Spearman) in intelligence may be assessed, and the Rorschach test (ink blots), which is of value in the estimation of personality.

It is unwise, however, to draw far-reaching deductions from any form of mental test. Every person must be taken individually, and a true conception can only be obtained when the question of social capacity and adaptability is fully recognised.

CHAPTER XXV

FREUD AND PSYCHO-ANALYSIS

FREUD distinguished three layers of the mind: the conscious, the preconscious or subconscious, and the unconscious. The conscious consists of the thoughts that one is aware of at the present moment. Beneath this is the preconscious containing thoughts that can become conscious if the appropriate circumstances arise. The deepest layer is the unconscious, which contains thoughts that are incapable of becoming conscious unless under analysis.

In 1895 Breuer and Freud were studying hypnosis, and as a result of their investigations pointed out the importance of differentiating between conscious and unconscious mental acts. Freud found that the use of hypnotism in the study of unconscious processes was limited, and he evolved a new method of investigating the workings of the mind which he called psycho-analysis.

Freud regarded the mind as being subject to internal as well as to external stimulation. Unconscious processes take place without the knowledge of the subject. The workings of instincts, conations and emotions are but dimly perceived by the individual consciousness. Freud's theory of the unconscious mind supplied an explanation of these mental processes.

While thoughts are capable of passing from one compartment of the mind to the other, it would appear that a selective agency is present which only admits certain thoughts from one compartment to the next.

Freud called this selective agency the CENSOR, and found that it exercised its functions particularly between the unconscious and the preconscious.

The contents of the unconscious layer of the mind consists of instinctive energies and primordial impulses. These impulses are not conscious and have no personality, but they are continually seeking satisfaction. Unconscious processes are ruled entirely by the pleasure-pain principle, and the energy inherent in them is capable of being transmitted from one to another.

Freud believed that the unconscious mind was the origin of mental energy derived from the instincts. This general instinctive energy Freud named the LIBIDO. Since the unconscious mind is purely impersonal he called it the ' id ' or ' it.' In the early stages of mental growth a portion of the ' id ' becomes differentiated from the rest of the unconscious by means of contact with the outer world. This portion, called by Freud the EGO, establishes relations between the organism and its environment. Part of the ego is unconscious and can only be revealed by analysis. During the course of mental development the ego takes up a critical attitude towards the rest of the ' id ' which is continually striving for satisfaction. While some of the demands of the ' id ' are accepted by the ego, others are rejected and are repressed, returning ungratified to the primitive unconscious.

As development continues, a portion of the ego becomes differentiated from the remainder and is in closer relationship with the ' id ' than the ego. This portion, the SUPER-EGO, watches over the repressed material that is continually seeking escape and acts as a dictator of what is to be repressed, the ego being concerned with the actual repressing.

The process of repression is unconscious, and the repressed impulses are those that are in conflict with the social and moral standards of the individual. The super-ego is therefore the moral guardian of the mind, but as repression is unconscious the repressed material has not been exposed to a moral judgment.

When two groups of mutually conflicting dispositions are excited at the same time the resulting situation is a conflict. Conflicts frequently arise from the excitement of two instinctive tendencies. One tendency is suppressed and the affective cognitive disposition is dispersed. Freud believed that the disposition became dissociated without resolution. Such a dissociated affective cognitive disposition is called a COMPLEX and is repressed into the unconscious. Because of the activities of the censor the repressed disposition cannot enter conscious life, but, striving as it does for gratification, may manifest itself in other ways as in dreams or in a neurosis.

In sleep the unconscious mind is free to assert itself, and repressed wishes in part evade the censor and show themselves in the disguised, distorted and symbolised form of dreams. (*Vide* Chapter XX.)

When the flow of interest is blocked by the process of repression the vital energy becomes deflected into other channels where it can be used to better advantage. This is the process of SUBLIMATION.

Sublimation is of the greatest importance in the development of mental life, and may be aided by moral and ethical training, education providing the new channels for the dispersion of the vital energy. From the working of the process of sublimation the higher sentiments originate. Moral training, example and the erection of ideals of life and conduct during the impressionable years of life aid sublimation and prevent fixation at developmental stages.

In seeking to uncover unconscious processes by psycho-analysis, the problem encountered is the overcoming of resistances that prevent the emerging of the unconscious processes into consciousness. **RESISTANCE** is the instinctive unconscious opposition that certain parts of the mind offer to the conscious appreciation of unconscious desires. Resistances are encountered in the methods of dream analysis and of free association, and it is the aim of psycho-analysis to recognise and overcome resistance, thus making contents of the unconscious capable of being dealt with by the conscious mind and making readjustment and re-education possible.